CODONICS®
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Virtua® C Medical Disc Publisher

User's Manual

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Preface

Conventions Used in This Manual

Bulleted Lists

Bullets are used to display a list of nonprocedural items. For example:

> Any system that supports DICOM Store should work with the device. Typical DICOM hosts that would connect to the device include:
>
> - Modality workstations
> - PACS workstations
> - Primary and secondary image acquisition systems

Numbered Steps

The icon indicates the beginning of a procedure. The steps in a procedure are numbered. For example:

To record studies on a disc

1. Click the **Studies** tab on the Main screen.
2. Click each of the studies that you want to include on the disc or disc set (if more than one disc is needed to store all of the studies).
3. When you have selected the studies you want to record on the disc, click the **Record** button.

Notes and Tips

Notes contain additional information related to a topic or procedure. For example:

NOTE: *If you do not shut down the system before removing the SmartDrive, a message displays indicating that the SmartDrive has been removed. Once it is reinserted, the system prompts you to reboot.*

Tips provide additional insights about a topic or procedure (such as, why you may want to do something or a faster way to perform an operation). For example:

TIP: Copying an existing User Profile to create a new one
Two User Profiles are preinstalled on every SmartDrive: ***user.admin.txt*** *(administrator user) and* ***user.virtua.txt*** *(regular user). To create new profiles, you can copy these files, rename them, and modify the parameters as necessary.*

Cautions and Warnings

Cautions alert you to actions or situations that could cause harm to equipment or data. For example:

CAUTION Do not touch the copper area of the cartridge print head.

Warnings alert you to actions or situations that could result in personal injury. For example:

WARNING The carton is heavy. To avoid injury, use two people to unpack and position the Virtua C.

Important Information and Filenames

Bold type is used for emphasis, command names, button names, and paths or filenames. For example:

- Click the **OK** button to continue with the operation.
- The logo must be a BMP file named **logo.bmp** and sized properly to fit on the logo area of the disc label.

Purpose and Scope

Refer to this user manual for procedures on how to perform the Virtua C user operations, including:

- Setting up the hardware and software
- Sending studies to be recorded
- Recording studies onto discs and labeling the discs
- Managing queued studies and recording jobs
- Performing preventive maintenance
- Troubleshooting common problems

Product Information

For technical assistance with Codonics Virtua C, call the Codonics Technical Support System at the following number:

Phone: **+1.440.243.1198**
Toll Free: **800.444.1198 (USA only)**

The Customer Service System is available weekdays from 8:30 AM to 5:30 PM EST (U.S. holidays excluded). Technical Support is also available online via e-mail and the Codonics web site:

E-mail: **support@codonics.com**
Web site: **www.codonics.com**

General product information can also be requested by sending e-mail to:

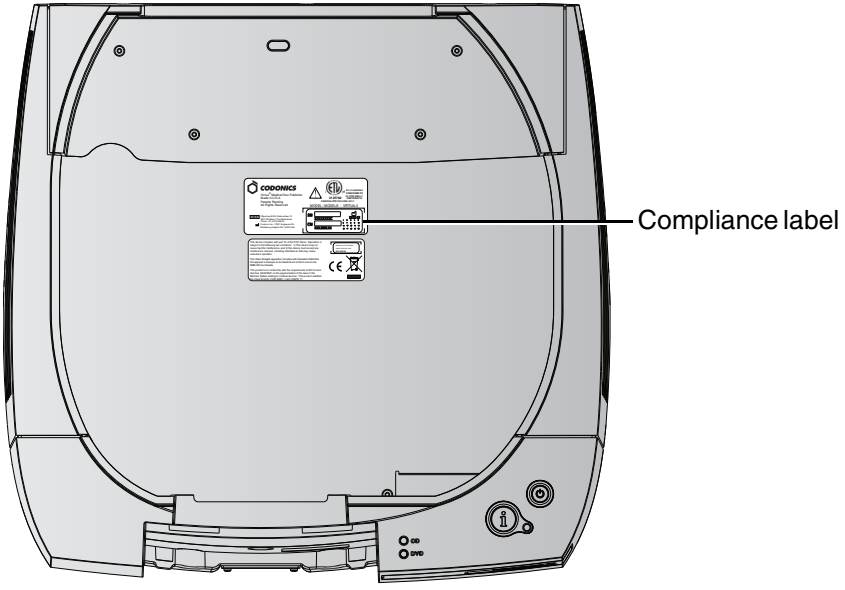
E-mail: **info@codonics.com**

Please include your postal mailing address and telephone number in the e-mail message. Basic product information is returned via e-mail. Complete product literature and sample prints are sent by postal mail.

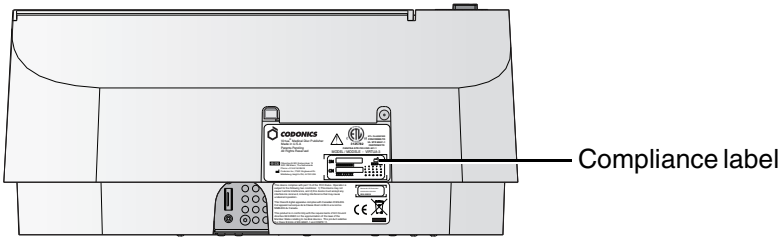
Warnings and Limitations of Use

Location of Safety and Compliance Labels

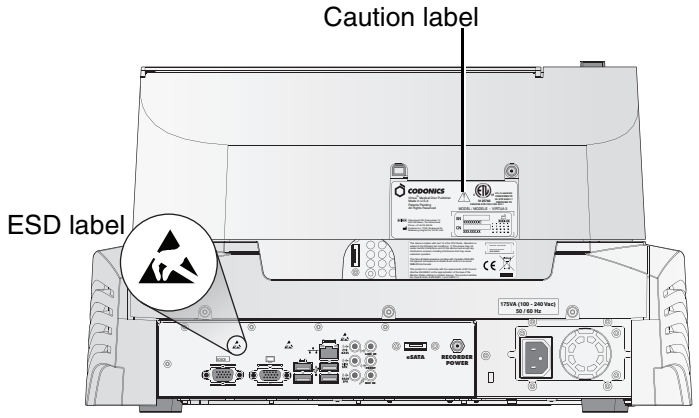
The following figure show the locations of the Virtua C compliance and safety labels.



Location of Controller compliance label



Location of Recorder compliance label



Location of ESD and caution safety labels

Voltage Warning

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying this device.

NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. REMOVAL OF LABELS, COVERS, OR ENCASEMENT FASTENERS VOIDS THE WARRANTY.

THIS APPARATUS MUST BE ELECTRICALLY GROUNDED.

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS DEVICE TO RAIN OR MOISTURE.

WARNING The power cord plug is the main disconnect for the device. The power outlet should be near the device and be easily accessible.

WARNING Remove the power cord plug from the power outlet to disconnect overall power to the device.

WARNING Grounding reliability can be achieved only when the equipment is connected to an equivalent receptacle marked "Hospital Only" (that is, "Hospital Grade").

EQUIPMENT IS NOT TO BE USED AS A COMPONENT OF A LIFE SUPPORT SYSTEM. Life support devices or systems are devices or systems that support or sustain life, and whose failure to perform can be reasonably expected to result in a significant injury or death to a person. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

Dangers Électriques

Le symbole point d'exclamation dans un triangle avertit l'utilisateur de l'existence d'importantes consignes d'utilisation et d'entretien, elles se trouvent dans la documentation accompagnant le produit.

AUCUNE PIECE NE PEUT ETRE CHANGEE PAR L'UTILISATEUR. ADRESSEZ VOUS AU PERSONNEL QUALIFIE. LE FAIT DE RETIRER LES ETIQUETTES OU DE DEMONTER LE CAPOT ANNULENT LA GARANTIE.

CET APPAREIL DOIT ETRE RELIE A LA TERRE.

N'EXPOSEZ PAS CET APPAREIL À LA PLUIE OU L'HUMIDITÉ, EN RAISON DU RISQUE DE FEU OU DE DÉCHARGES ÉLECTRIQUES.

CET APPAREIL NE DOIT PAS ÊTRE UTILISÉ COMME COMPOSANT D'UN SYSTÈME D'ASSISTANCE VITALE. Cet appareil ne doit pas être utilisé dans des conditions où la défaillance de l'appareil pourrait entrainer blessure ou mort d'homme.

Laser Warning

The Codonics Virtua C Medical Disc Publisher contains a laser diode in the Recorder unit of a class higher than 1. To ensure continued safety, do not remove any covers or attempt to gain access to the inside of the product. Refer all servicing to qualified personnel. The following label appears inside your unit:

CLASS 1 LASER PRODUCT LASER KLASSE 1

Danger du Faisceau Laser

Le système "Codonics Virtua C Medical Disc Publisher" contient un graveur de CD dont la diode laser est de classe supérieur à 1.

Pour votre sécurité, n'enlevez pas les caches, n'essayez pas d'ouvrir l'appareil. Adressez vous au personnel qualifié en cas de panne.

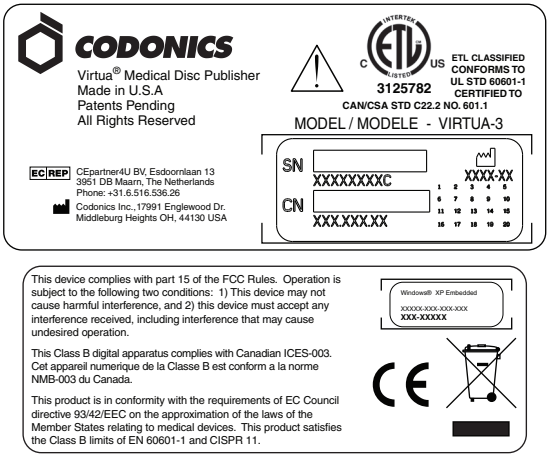
L'étiquette suivante est apposée à l'intérieur de l'appareil:

CLASS 1 LASER PRODUCT LASER KLASSE 1

Compliance

Codonics is in compliance with various regulations, of which details are listed in Appendix B.

The Compliance label for Virtua C (as illustrated in "Location of Safety and Compliance Labels" on page xv) is shown below.


CODONICS
Virtua® Medical Disc Publisher
Made in U.S.A
Patents Pending
All Rights Reserved
3125782
ETL CLASSIFIED
CONFORMS TO
UL STD 60601-1
CERTIFIED TO
CAN/CSA STD C22.2 NO. 601.1
MODEL / MODELE - VIRTUA-3
EC REP
CEpartner4U BV, Esdoornlaan 13
3951 DB Maarn, The Netherlands
Phone: +31.6.516.536.26
Codonics Inc.,17991 Englewood Dr.
Middleburg Heights OH, 44130 USA
SN
XXXXXXXC
CN
XXX.XXX.XX
XXXX-XX
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: 1) This device may not cause harmful interference, and 2) this device must accept any interference received, including interference that may cause undesired operation.
This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numerique de la Classe B est conform a la norme NMB-003 du Canada.
This product is in conformity with the requirements of EC Council directive 93/42/EEC on the approximation of the laws of the Member States relating to medical devices. This product satisfies the Class B limits of EN 60601-1 and CISPR 11.
Windows® XP Embedded
XXXXX-XXX-XXX-XXX
XXX-XXXXX

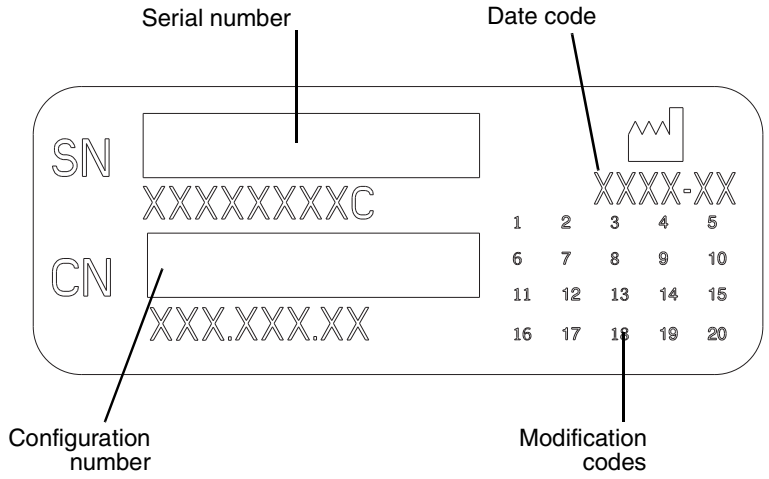
Compliance label for Virtua C

Serial Number, Configuration, Date Code, and Modification Codes

The serial number label is placed onto the compliance label.

The serial number label includes the following information:

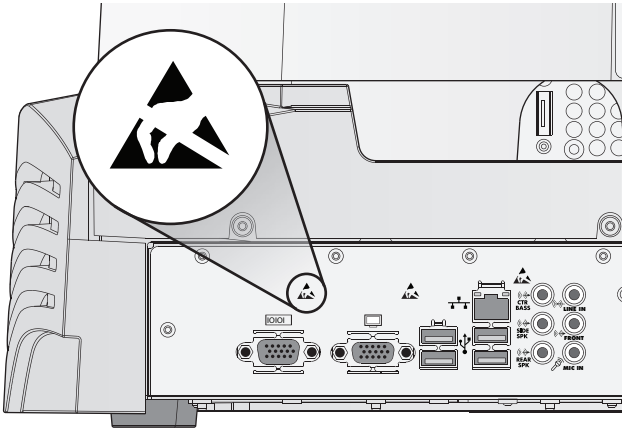
- The serial number (SN), which uniquely identifies the unit.
- The configuration number (CN), which details the build configuration.
- The modifications codes, which are to the right of the CN number and are a series of 20 numbers. When any of these numbers are blocked out, that identifies a modification that was made to the unit.
- The date code in YYYY-MM format below the factory date code symbol.



Serial number label

ESD Caution

Connections to other pieces of equipment are made at the rear of Virtua C. These connectors are marked with a precautionary ESD warning symbol, as shown below. Do not touch any of the pins of these connectors. When making connections to the device, it is best done while the device is plugged in but not powered on. ESD may cause erratic behavior of the device when powered on. Should this occur, power to the device may have to be cycled. It is recommended that all staff involved in making connections to the device be aware of these ESD precautions.



ESD labels at rear of Virtua C

Potential for Radio Frequency Interference on Device Operation

Both portable and mobile RF communications equipment can affect medical electrical equipment, including Virtua C. Keep such RF communications equipment out of the immediate area.

Potential for Radio and Television Interference

Virtua C generates and uses radio frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. Do not change the Display refresh rate, which is set for 75 Hz. The device has been type tested and found to comply with Class B emission limits for a computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operating in a commercial environment. Operation of the equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be appropriate to correct the interference. If your device does cause interference to radio or television reception, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna
- Relocate the device with respect to the receiver

If necessary, you should consult Codonics Technical Support or an experienced radio/television technician for additional suggestions. You may find the following booklet prepared by the Federal Communications Commission helpful: *How to Identify and Resolve Radio-TV Interference Problems*. This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock No. 004-000-00345-4.

This product is in conformity with the protection requirements of EC Council directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. This product satisfies the Class B limits of EN55011. A declaration of conformity with the requirements of the Directive has been signed by the Director of Quality Assurance and Regulatory Affairs.

Le présent appareil numérique n'émet pas de bruits radio-électriques dépassant les limites applicables aux appareils numériques de la Classe B prescrites dans le Réglement sur le brouillage radioélectrique édicté par le ministére des Communications du Canada.

Safety Precautions

- Never connect this device to any outlet or power supply that has a voltage or frequency different than that specified and set on the rear of the device.
- When servicing the device, always power it off by pressing the System power button, then unplug the device.
- Damage to the power cord may cause fire or shock hazard. When unplugging the power cord, hold it by the plug only and remove the plug carefully.
- If the power cord needs to be replaced, replace it only with another Codonics power cord manufactured specifically for your power configuration.
- If the device is smoking or making unusual sounds, power off and unplug the device immediately.
- Do not insert foreign objects of any kind into the device; doing so can constitute a safety hazard and cause extensive damage.
- Do not place any liquid containers on the device. If, for some reason, liquid seeps into the device, power off the device and unplug the power cord from the source outlet. If used without corrective measures, the device may be damaged.
- Do not use the device near flammable gases.
- Connect only Codonics-approved devices.

NOTE: *A mouse and keyboard are not intended for normal use conditions, as external signals could cause the system to lock-up.*

Précaution d'Emploi

- *Ne jamais brancher cet appareil sur une source d'alimentation électrique dont la tension ou la fréquence diffèrent des valeurs indiquées à l'arrière de l'appareil.*
- *Quand vous vous faites de la maintenance sur l'appareil,toujours l'éteindre en appuyant sur le bouton OFF, ensuite débrancher l'appareil.*
- *Un cordon d'alimentation endommagé peut être une cause d'incendie ou de décharge électrique. En déconnectant le cordon d'alimentation, tenez-le seulement par la prise et retirez la prise soigneusement.*
- *Si le cordon d'alimentation doit être remplacé, utilisez un cordon d'alimentation Codonics fabriqué spécifiquement pour votre appareil.*
- *Si l'appareil fume ou émet des bruits inhabituels arrêtez-le immédiatement et débranchez le câble secteur.*
- *N'introduisez aucun objet étranger dans l'appareil, cela peut être une source de danger et peut causer de graves dommages.*
- *Ne déposez aucun récipient à coté de l'appareil. Si pour une raison quelconque un liquide est renversé à l'intérieur, arrêtez immédiatement l'appareil et débranchez le câble secteur. Toute nouvelle utilisation de l'appareil sans intervention peut causer de graves dommages.*
- *Ne pas utiliser l'appareil à coté d'une source de gaz inflammable.*
- *Ne pas brancher qu'avec des appareils approuvés par Codonics.*

NOTE: *Il n'est pas prévu d'utiliser le clavier ou la souris dans les conditions normales. Cette usage risque de provoquer une panne informatique.*

Location Precautions

- The device's operating ambient temperature range is 15–30°C (59–86°F), with a relative humidity of 20%–80%.
- If the device is moved quickly from an extremely cold place to a warmer one, condensation is likely to form. Do not use the device if condensation has formed. Wait until the condensation has evaporated. You can speed up the evaporation time by moving the device to a drier location.
- Ventilation slots and holes are provided on the sides and rear of the device. Place the device on a level, stable surface and locate it at least 4 in. (10 cm) from walls to ensure proper ventilation.

CAUTION Adequate ventilation is required for proper operation of the device.

- Do not place device in a high humidity or high dust area. Airborne dirt particles can cause interference with the operation of the device. Avoid placing the device in areas where ventilation ducts, open doors, or frequent passers-by might expose the device and media to high levels of debris.
- Do not locate the device in hot-springs areas where hydrogen sulfide and acidic ions are likely to be generated.
- Do not locate the device where there are oily fumes and vapors.
- Do not locate the device in direct sunlight.
- Do not locate device near sources of high RF energy.
- Do not locate the device where it might be subject to jarring or vibrations, such as a table or desk in a high-traffic area. Jarring and vibrations can affect the recording and labeling of discs.

Environnement de Fonctionnement

- *Les conditions normales d'utilisation de l'appareil sont : une température de 15 à 30°C et une humidité relative de 20 % à 80 %.*
- *En cas de variation rapide de la température, de la condensation peut se former. Dans ce cas n'utilisez pas l'appareil, attendez que la condensation se soit évaporée. Vous pouvez accélère cette évaporation en déplacent l'appareil dans un endroit sec.*
- *Les fentes de ventilation se trouvent sur les côtés et à l'arrière du appareil. Placez l'appareil sur une surface stable et au moins 10 cm à des murs pour assurer une ventilation correcte.*

ATTENTION ***Une ventilation correcte est nécessaire au bon fonctionnement de l'appareil.***

- *Ne placez pas l'appareil dans une zone propre et non-humide. Des particules de poussières peuvent causer des disfonctionnements. Évitez de placer l'appareil à proximité d'une bouche de ventilation, d'une porte, ou d'un lieu très fréquenté car cela pourrait exposer l'appareil ainsi que les médias à la poussière.*
- *Ne placez pas l'appareil à proximité d'une source de chaleur ou de substances acides.*
- *Ne placez pas l'appareil dans une pièce où il y a des vapeurs huileuses et grasses.*
- *N'exposez pas l'appareil à la lumière directe du soleil.*
- *Ne placez pas l'appareil près d'une source haute fréquence.*
- *Ne placez pas l'appareil dans un lieu où il pourrait être exposé à des vibrations, car cela peut nuire à l'enregistrement et à l'impression des média.*

Cleaning Precautions

- Many plastic components are used in the device's construction. Coat flecking and deformation is likely to occur if the device is wiped with chemical dusters, benzene, thinners, insecticides, or other solvents. Rubber and PVC materials left in contact with the device for extended times will cause damage. Never use petroleum-based solutions or abrasive cleaners.
- To clean the device cover, first power off the device by pressing the System power button on the Controller front panel, then unplug the device. Clean the cover with a soft cloth slightly moistened with a mild soap and water solution. Allow the cover to completely dry before operating the device again.
- Do not use alcohol.

Précautions d'Entretien

- *Cet appareil comporte plusieurs pièces en plastique. Des taches et des déformations peuvent être provoquées par l'utilisation de chiffon imbibé de benzène, d'essences, d'insecticides, ou d'autres solvants. N'utilisez jamais solution à base de pétrole.*
- *Pour nettoyer l'appareil, veuillez d'abord l'éteindre en utilisant le bouton d'arrêt vert sur panneau avant, puis l'interrupteur situé à l'arrière, et n'oubliez pas de débrancher le câble secteur. Nettoyez l'extérieur de l'appareil avec un tissu doux légèrement humidifié avec un une solution à base d'eau et de savon non corrosif. Laissez sécher avant de remettre en fonction le système.*
- *Ne pas utiliser de lingette à l'alcool.*

Media

- Discs with a reject icon printed on the label have failed to record properly and should be destroyed or disposed of to ensure the confidentiality of patient medical information.

- Unwanted discs should be destroyed or disposed of to ensure the confidentiality of patient medical information.
- Only use Codonics-recommended discs to ensure compatibility with the recording and labeling system of the device. Contact Codonics Customer Service for a current list of recommended discs and suppliers.
- Only use Codonics-recommended ink cartridges to ensure proper operation of the device and proper labeling of the disc. Contact Codonics Customer Service for a current list of recommended ink cartridges and suppliers.
- Never refill ink cartridges as this can cause damage to the mechanism of the device and cause improper labeling of discs.
- Recorded discs should be stored in protective cases or sleeves when not in use to protect from scratches and contamination that can interfere with data retrieval and label legibility.
- Do not subject recorded discs to prolonged exposure to sunlight, ultraviolet light, or extreme heat as this can interfere with data retrieval and label legibility.

Utilisation des Média (CD-DVD) et Consommables

- *Les CD ou DVD avec l'icône 'reject" imprimé sur l'étiquette n'ont pas été enregistrés correctement et doivent être détruits pour assurer la confidentialité des informations médicales du patient..*
- *Des disques produits par erreur doivent être détruits pour assurer la confidentialité des informations médicales du patient.*
- *Afin d'assurer la compatibilité de la gravure et de l'impression, n'utilisez que les CD et DVD recommandés par Codonics. Contactez le service client pour connaître la liste des fournisseurs de produits compatibles.*

- *Afin d'obtenir la meilleure qualité d'impression, n'utilisez que les cartouches d'encre recommandées par Codonics. Contactez le service client pour connaître la liste des fournisseurs de produits compatibles.*
- *Ne rechargez jamais les cartouches d'encre cela ne peut endommager le mécanisme et provoquer une impression incorrectes des disques.*
- *Les CD-DVD enregistrés devraient être rangés dans un étui protecteur afin de les protéger des rayures et de la poussière, cela pourrait nuire à la relecture des données et endommager les données imprimées.*
- *Les CD-DVD enregistrés ne doivent pas être exposées à la lumière directe du soleil ainsi qu'à tout autres sources de chaleur ou d'ultra-violet, cela pourrait nuire à la relecture des données et endommager les données imprimées.*

Codonics Virtua Medical Image Viewer

- The Codonics Virtua Medical Image Viewer is not intended for diagnostic use. The viewer is provided for reference use only as a post-diagnostic tool.
- Image quality can vary greatly from system to system based on the age, quality, and resolution of the display device (monitor or LCD display), graphics card, cabling, and ambient light conditions.

Le Visualiseur Codonics Virtua

- *Le visualiseur Codonics Virtua n'est pas destiné au diagnostique, il doit être utilisé comme un outil post-diagnostique.*
- *La qualité des images peut varier énormément en fonction des caractéristiques du système utilisé pour la relecture du CD, comme par exemple: la résolution du moniteur, la précision de la carte graphique, et l'éclairage ambient.*

Medical and Patient Information

- Virtua C log files might contain patient information. Use caution when distributing log files.
- CD and DVD media are not intended to be used as the only method for archiving medical information. An overall strategy for archiving medical information that includes CD or DVD media must ensure that multiple copies of the information be stored at multiple locations. Media quality, handling, and storage conditions are important factors that must be considered.

Disposal Requirements

Disposal of this product and consumables shall be in accordance with all applicable laws and regulations in effect at the locality at the time of disposal. For additional information, refer to Appendix A, Hazardous Material Information.

Conditions et Règles d'Utilisation

L'utilisation de ce produit doit être conforme à toutes les lois et règlements applicables sur le lieu d'utilisation.

European Disposal Requirements

Codonics imagers and electronic accessory devices are not to be discarded or recycled; rather they are to be returned to the manufacturer. Contact Codonics directly or by the link provided for the latest information concerning:

- Identification of the country specific Importer/Distributor/Producer
- Product return and treatment of our electronic products

Manufacturer: Codonics Incorporated
17991 Englewood Drive
Middleburg Heights, OH 44130 USA
Phone: +1.440.243.1198
Fax: +1.440.243.1334
E-mail: WEEE@codonics.com
www.codonics.com

Codonics imagers and electronic accessory devices bearing the following symbol are subject to European Directive on Waste Electrical and Electronic Equipment (WEEE) 2002/96/EC, amended by Directive 2003/108/EC. The EN 50419 symbol indicates separate collection and return required.

EN 50419 symbol

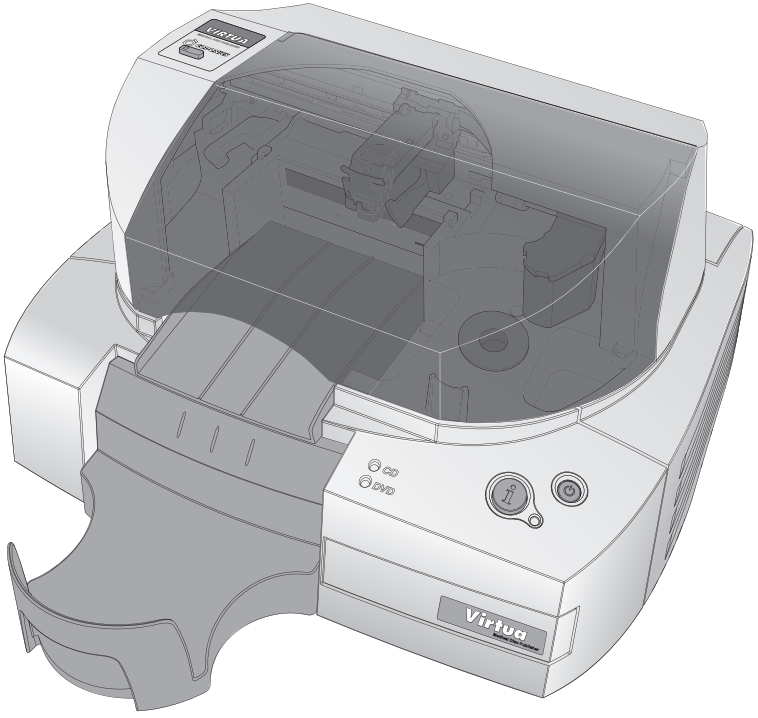
Indications for Use

Virtua C Series devices are intended for digital medical image communication, processing, and storage. Functions include transfer, "viewing client on CD/DVD" provision, storage, archive, recording, and labeling of CD/DVD media. When configured, the ability to re-direct all or part of a radiographic study to Codonics Horizon Series Medical Hardcopy Dry Imagers or other approved 892.2040 medical hardcopy imager/printer is provided. Typical users of this system are trained professionals, including but not limited to physicians, nurses, and technicians.

1 Introduction

Welcome and Congratulations

Congratulations on your purchase of the Codonics® Virtua® C Medical Disc Publisher!



We are pleased you chose Virtua C. We are confident that it will provide fast, reliable disc recording and labeling for your demanding data storage and distribution applications.

Product Features

Virtua C is a complete network-based solution for recording and labeling diagnostic studies onto CD and DVD media. Virtua C integrates a CD/DVD drive, a disc label printer, and a computer into a compact design. Virtua C optimizes workflow and increases productivity by automatically creating IHE PDI-compliant discs. Virtua C uses Codonics high-quality CD/DVD media that provides reliable storage for data distribution.

Hardware Features

- **Integrated printer** automatically labels discs with patient information, study information, and the address and logo of the imaging facility.
- **Embedded computer** and large-capacity hard drive allow multiple DICOM workstations to concurrently share Virtua C and spool hundreds of studies.
- **10/100/1000Mb Ethernet** provides industry-standard connectivity and support for DICOM Store.
- **High-quality Codonics CD-R and DVD-R media** provides reliable storage for data distribution and archiving.
- **20-disc capacity** allows for 20 CD-R discs or 20 DVD-R discs.
- **Convenient media access** is provided by a front-loading design that allows discs to be refilled in seconds.
- **Small footprint** occupies less than two feet of counter space.

Operational Features

- **Built-in web server** allows remote web browser access to an easy-to-use interface that optimizes daily workflow activities. System configuration, operation, and status information is easily accessible from the user interface.
- **Store-to-disc** functionality allows you to store DICOM studies to Virtua C directly from modality consoles, PACS systems, or viewing stations, and to receive an IHE PDI-compliant DICOM disc in minutes.
- **Auto mode** provides one-step disc creation by recording one or more studies to disc for each DICOM study received.
- **Manual mode** provides flexible disc creation by allowing you to select one or more studies to be recorded.
- **True multi-user support** is provided by Job Profiles that allow you to tailor features including media type, labeling, operating mode, and priority.
- **Multi-site information.** Multi-site support allows imaging center site information — such as address, disc label, image viewer, and other parameters — to be configured so that the same Virtua C can be used at multiple sites. For example, this is useful in mobile coach applications.
- **A Windows-compatible DICOM viewer** is included with Virtua C and can be included on each disc.
- **Optional third-party DICOM viewers** are available, allowing you to install one or more DICOM viewers of your choice on discs.
- **The optional Patient Reports feature allows Virtua C to receive HL7 and DICOM Structured Reports** from a RIS or PACS and match them to a patient's study, allowing the recording of both the report and study together on the same disc.

- **The optional Scheduled Archive** feature provides a method of creating a set of discs that contain all studies received by Virtua C. This provides an economical way to store studies for future referral or importing into PACS systems.
- **Easy to service** with Codonics exclusive Express Warranty program, which provides a replacement Virtua C if the problem cannot be solved by our Support team. Also, the SmartDrive allows all configurations settings to be quickly transferred to a replacement unit. This minimizes downtime and reconfiguration effort.

Compliance with Industry Standards

- Meets all industry standards including DICOM part10, IHE PDI, and audit logs for HIPAA compliance
- Full medical device compliance including FDA and MDD CE Class I, GMP/QSR ISO13485-2003, and 60601-1 Safety and EMC/EMI for Healthcare Facilities

2

Setting Up the Hardware

Finding a Location for the Device

When finding a suitable location for the device, use the following guidelines:

- Place the device in a location with adequate air circulation to prevent internal heat build up. You will need at least 24 in. (61 cm) of overhead space to allow the Recorder cover to open freely.
- Do not place the device near heat sources such as radiators or air ducts, or in a location subject to direct sunlight, excessive dust, mechanical vibration, or shock.
- Do not block air ventilation on the sides or rear of the device.
- Make sure that the countertop or work surface supporting the device is level, can support the weight, and will not vibrate or shake when the device is operating.

For additional location precautions, refer to “Location Precautions” on page xxv.

Shipped Components

Virtua C is shipped in cartons that contain the following system components:

- Controller
- Recorder
- Supporting documentation package (including the Virtua C Quick Reference, Warranty, and support documents)

The following items are found in the Accessory Kit box:

- SmartDrive USB flash drive
- Output bin
- Eject ramp
- Controller power cord
- Recorder power cord
- eSATA cable
- USB cable
- Ethernet cable
- Software Installation disc
- Software Accessories and Manuals disc

Inspect the cartons for damage that might have occurred during shipping. Report any damage to the shipping company.

Save the cartons and packing materials, in case you ever need to transport Virtua C later.

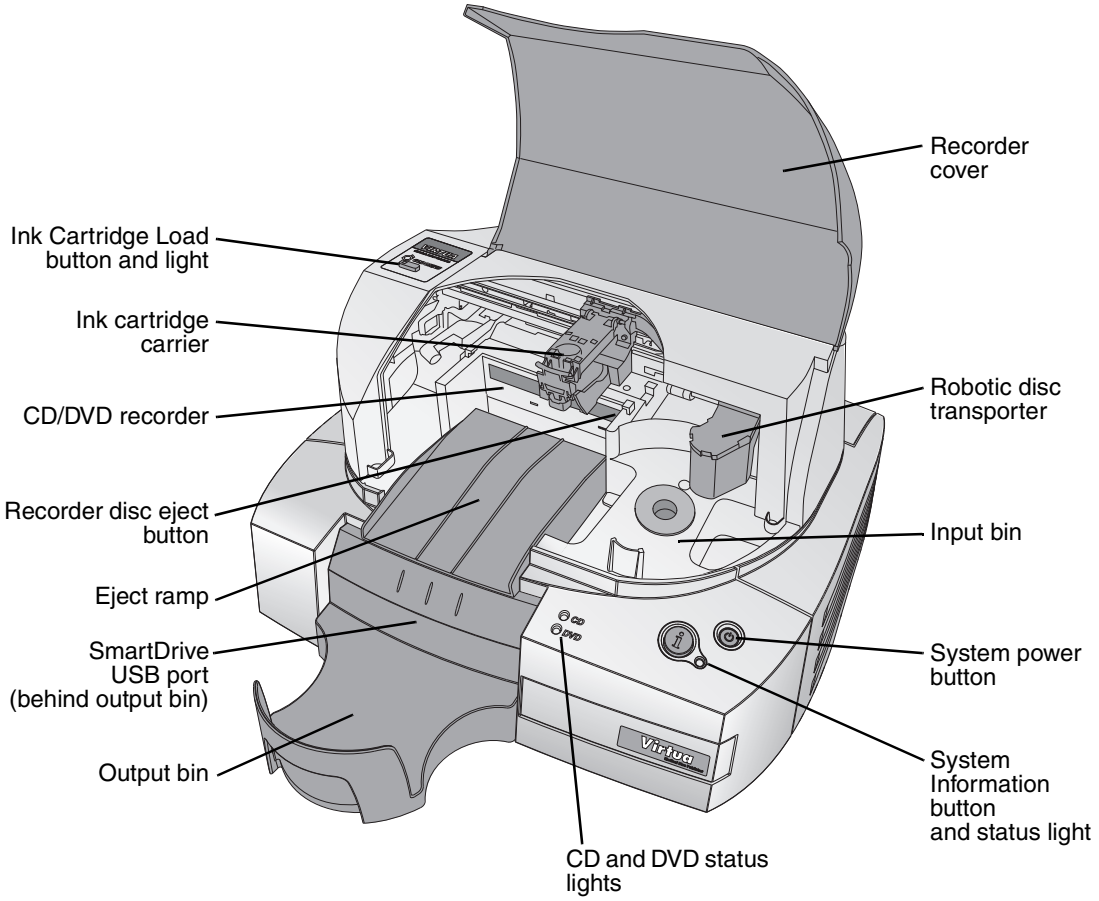
WARNING The shipping cartons are heavy. To avoid injury, use two people to unpack and position the components.

CAUTION When removing the Controller or Recorder, hold under the front and rear of the device. Do not lift the device by the foam packaging.

Identifying the Parts

Controller and Recorder Front Components

The following illustration shows the components at the front of the Controller and Recorder, and inside the Recorder.



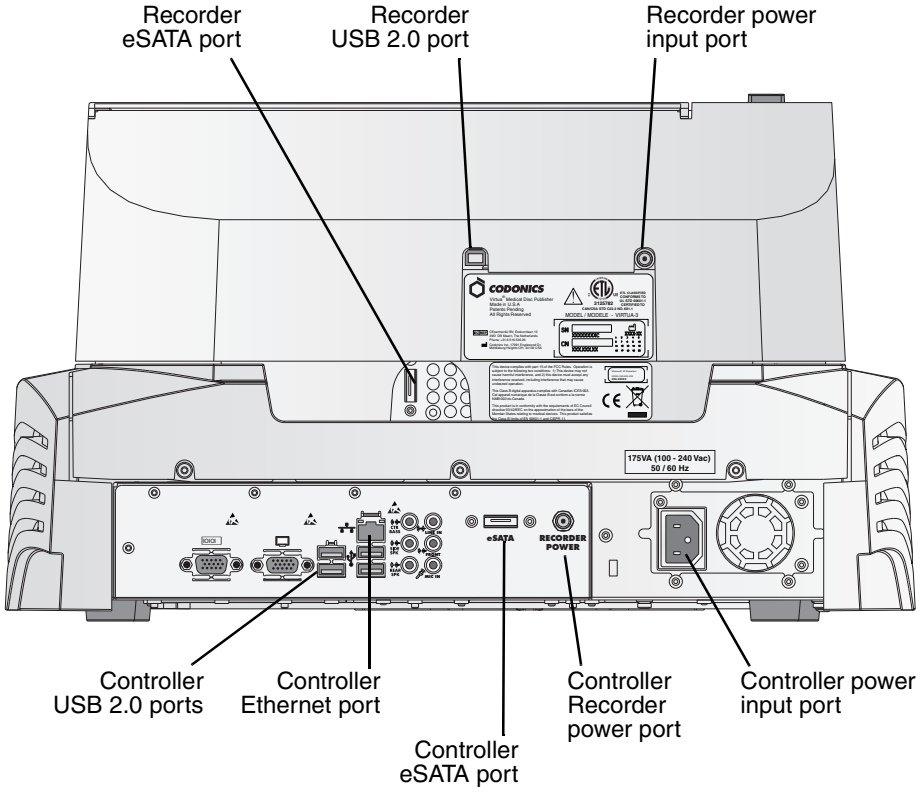
Controller and Recorder front components

- The **cover** is a durable plastic cover that protects the Recorder from dust and accidental user interference while operating.
- The **System power button** powers on the device.
- The **CD status light** is used to indicate the status of CD media in the input bin.
- The **DVD status light** is used to indicate the status of DVD media in the input bin.
- The **System status light** is used to indicate the operational status of the system.

  For information about how to interpret the status lights, refer to "Interpreting Dashboard System Status Lights" on page 13-3.
- The **System Information button** can be pressed to play a narrated message that explains the system status in more detail.
- Pressing the **Ink Cartridge Load button** positions the ink cartridge carrier for easy ink cartridge replacement.
- The **ink cartridge carrier** holds the color ink cartridge.
- The **CD/DVD recorder** is automatically loaded and unloaded by the Recorder's robotic disc transporter.
- The **Recorder disc eject button** manually opens or closes the Recorder tray. In normal operation, the in/out movement of the Recorder tray is controlled automatically and this button is not used.
- The **input bin** holds up to 20 blank discs for recording.
- The **output bin** is where discs are placed after they have finished being recorded. The output bin can hold up to 25 discs.
- The **robotic disc transporter** moves discs from the input bin, to the CD/DVD recorder, to the printer, and finally to the output bin.
- The device's configuration data is stored on the SmartDrive, which must be inserted in the **SmartDrive USB port** located behind the output bin on the Controller front panel. The SmartDrive must be installed for the device to operate.

Controller and Recorder Rear Panels

The following illustration shows the input/output ports located on the Controller and Recorder rear panels.

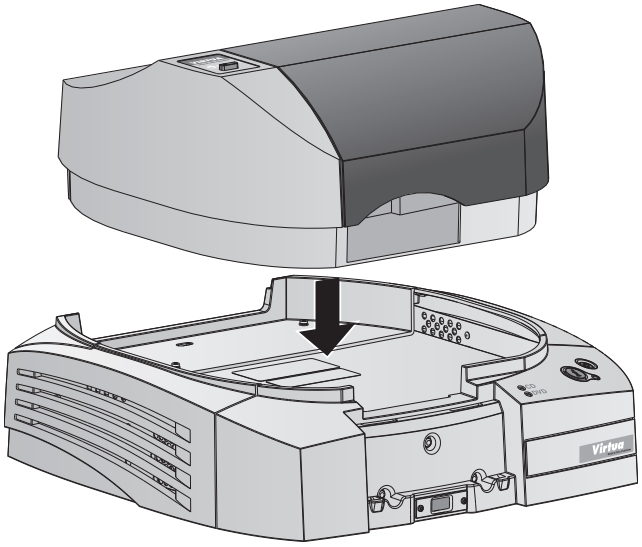


Controller and Recorder rear panel ports

Setting Up the Controller and Recorder

To set up the Controller and Recorder

1. Position the Controller on the work surface that will hold the device. Allow at least 6 in. (15 cm) of clearance in front of the Controller and 4 in. (10 cm) of clearance behind and on both sides for proper air flow.
2. Place the Recorder on the Controller.



Recorder positioned over the Controller

WARNING Before placing the Recorder on top of the Controller, make sure your fingers are not under the Recorder to avoid pinching them.

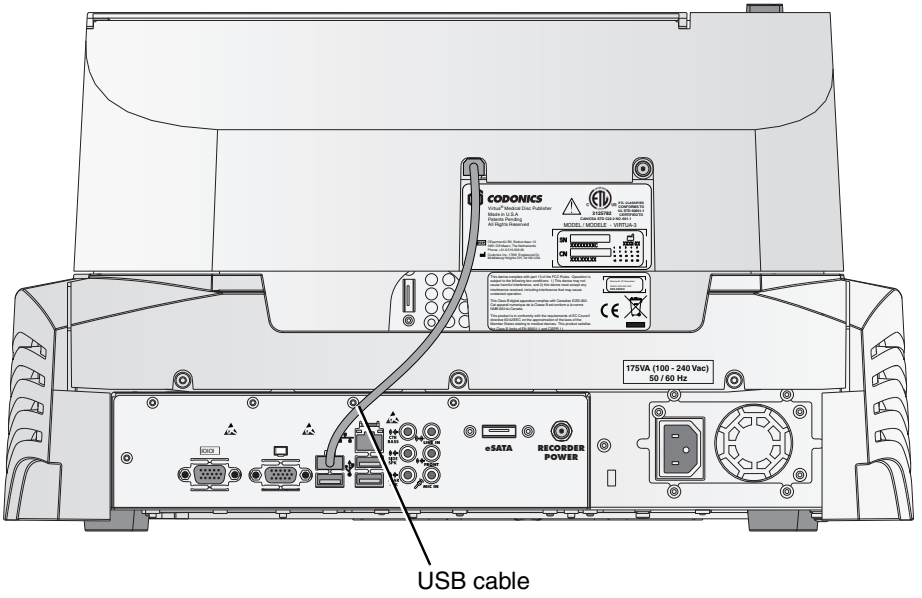
3. Lift the Recorder cover and remove any packing material.

NOTE: *Save all packing materials for future return shipments.*

Connecting Cables and Power Cords

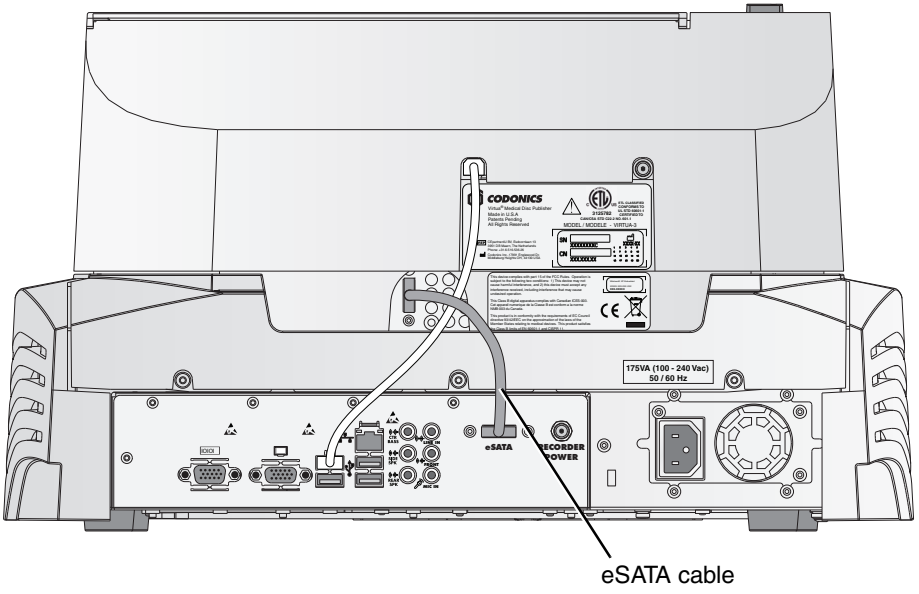
To connect the input/output cables and power cords

1. Connect the USB cable to the USB port on the Controller, and then to the Recorder's USB port.



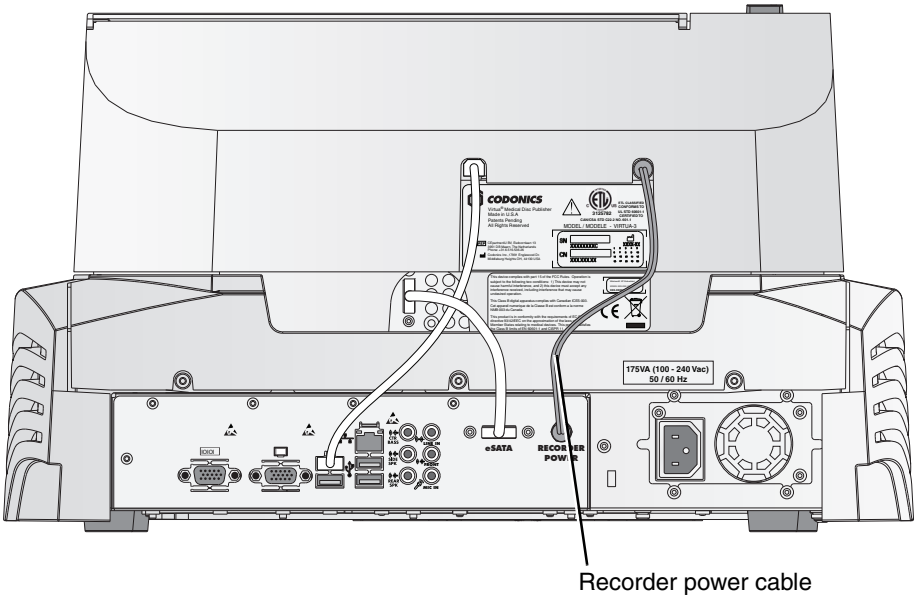
USB cable connected between the Controller and the Recorder

2. Connect the eSATA cable (from the Accessory Kit box) to the eSATA port on the Controller, then to the Recorder's eSATA port.



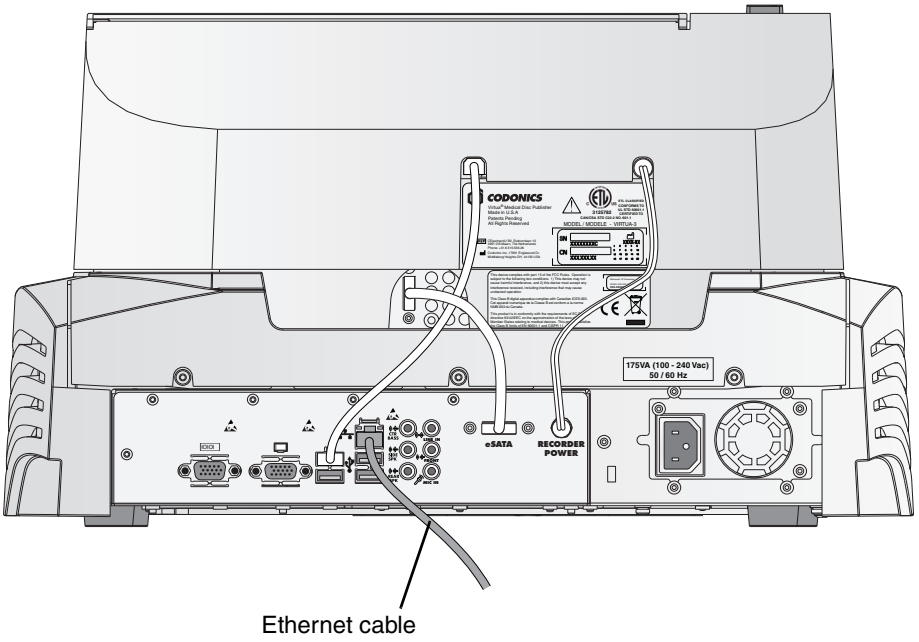
eSATA cable connected between the Controller and the Recorder

3. Connect the Recorder power cable to the power ports on the Controller and Recorder, as shown below.



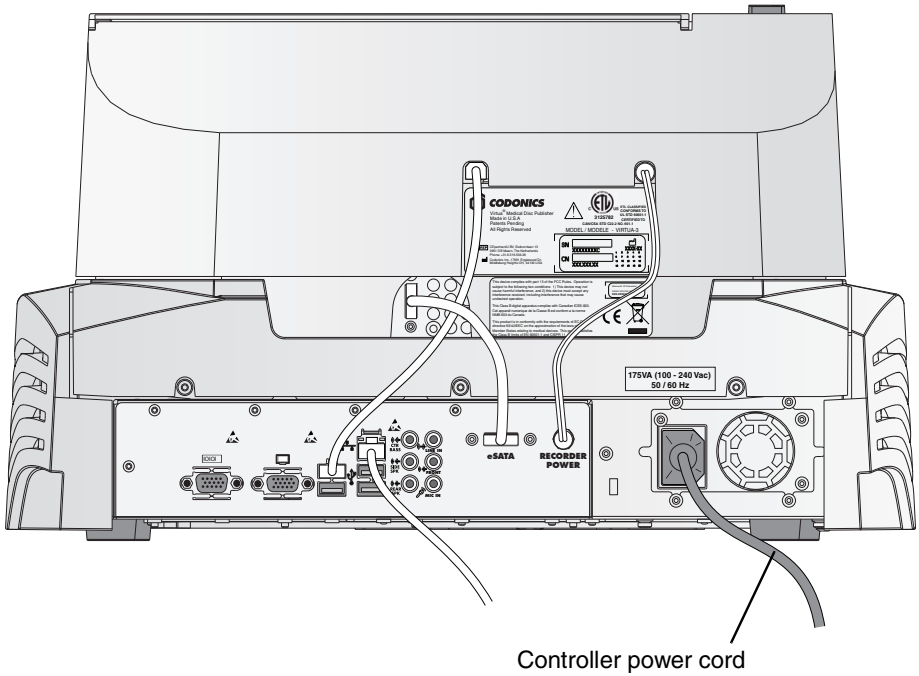
Recorder power cable connected to the Controller and Recorder

4. Connect an Ethernet cable to the RJ-45 Ethernet jack on the rear of the Controller. Use the 25-ft Cat 5e straight-through cable provided or any standard Ethernet cable.



Ethernet cable connected to Virtua C

5. Connect the power cord to the Controller power input port.



Controller power cord connected to Virtua C

Setting Up the Device for Use

There are several tasks required to set up the device for use:

- Specifying site-specific configuration parameters in Virtua C profiles on the SmartDrive
- Inserting the SmartDrive in its USB port
- Attaching the output bin
- Installing the disc ramp
- Loading discs into the input bin
- Installing the color ink cartridge

To set up the device for use

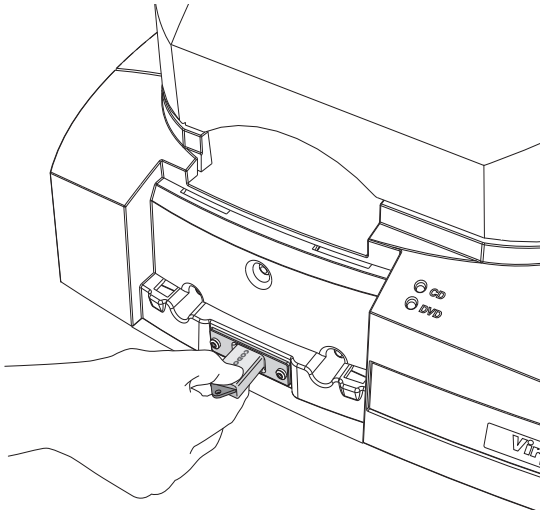
1. Configure site-specific parameters in Virtua C profiles on the SmartDrive.

   For more information about configuring the profiles that typically require site-specific information, refer to the following topics:

   - For general information about editing profiles, refer to “Creating and Modifying Profiles” on page 3-6.
   - To configure network settings, refer to “Setting Up Network Profiles” on page 3-7.
   - To configure site information, refer to “Setting Up Site Profiles” on page 3-30.
   - To set the media selection mode, refer to “Setting Up Job Profiles” on page 3-35 and “Media Types and Profile Parameter Settings” on page 3-46.
   - To set the locale, refer to “Setting Up the Locale Profile” on page 9-8

2. The green plastic funnel at the front of the Controller identifies the location of USB port for the SmartDrive. Insert the SmartDrive through the opening in the funnel until it is securely seated in the USB port.

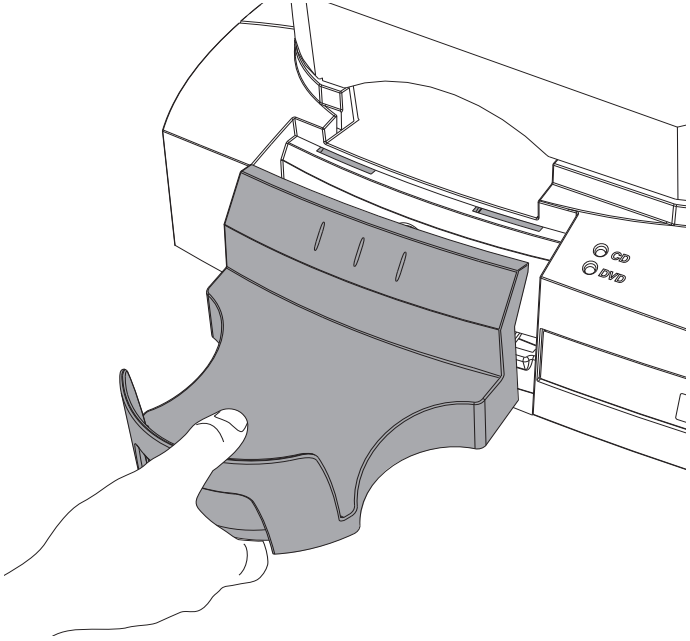
NOTE: *The "Codonics" logo on the SmartDrive must be facing up.*



Inserting SmartDrive into USB port at front of the Controller

3. Attach the green output bin to the Controller.

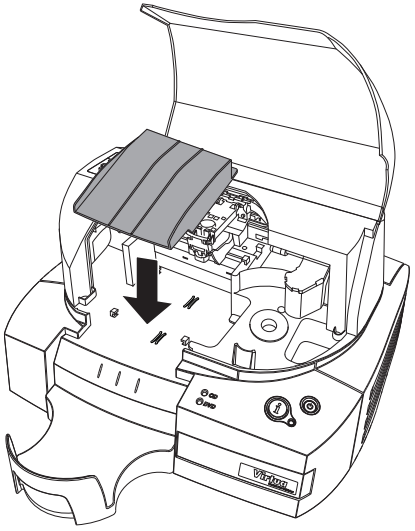
   There are four tabs on the underside of the output bin. Align these tabs with the four slots on the Controller front panel. Then, slide the output bin down into the slots. The output bin will rest slightly above the table surface.



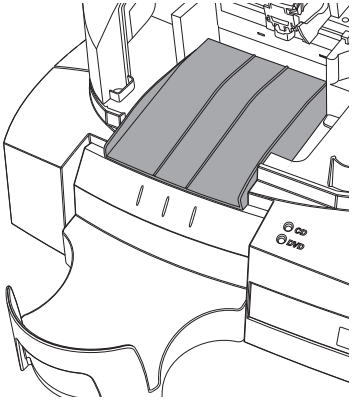
Inserting output bin into slots on Controller front panel

4. Open the Recorder cover.

5. Install the eject ramp.

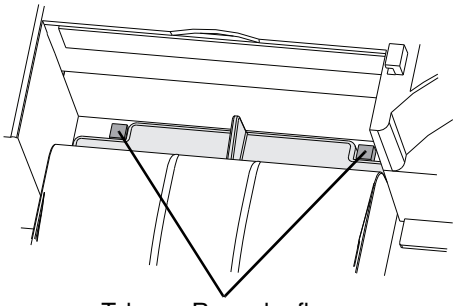


Installing the eject ramp



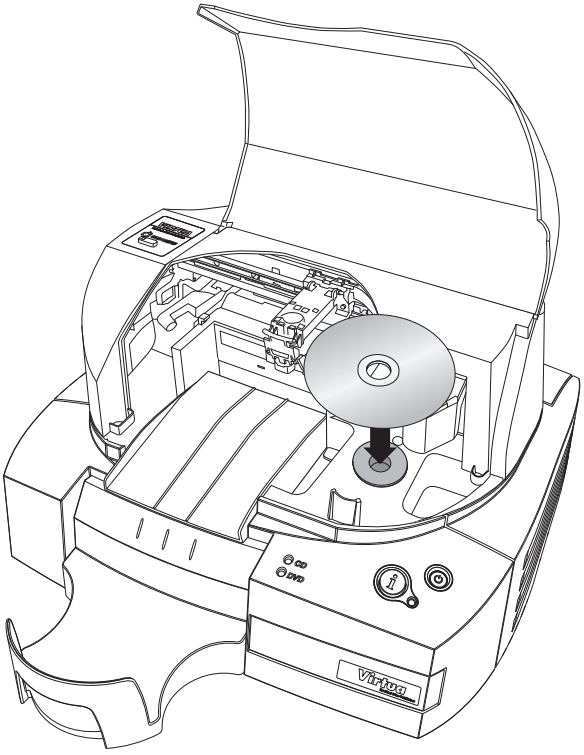
Eject ramp properly positioned over output bin

NOTE: *Make sure that the ramp is fully seated on the floor of the Recorder, and not sitting on top of the two tabs on the Recorder floor. The two cutouts on the back edge of the rear lip of the ramp should be up against the tabs, as shown below.*



Tabs on Recorder floor

6. Load up to 20 blank discs, recording side down, into the input bin.



Loading disc into input bin

The bin is assigned a media type — either CD or DVD — which is indicated by the CD or DVD status light on the front panel, and by the Media indicator on the Dashboard displayed on the user interface. For information about setting the media type assignment, refer to "Setting Up the System Profile" on page 3-26.

The supported media disc types are CD-R with a suggested recording speed of 48x or higher, and DVD-R with a suggested recording speed of 18x or higher.

NOTE: *The Recorder is designed to print labels on certain brands of discs with specific printable surfaces. Only use Codonics-recommended discs. Contact Codonics Customer Service for a current list of recommended discs and suppliers.*

Powering On the Device

To power on the device

1. Connect the power cord from the Controller to a grounded power outlet that supplies the appropriate voltage for the applicable country.

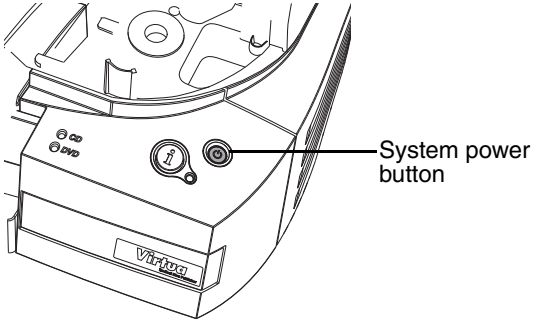
WARNING The power cord plug is the main disconnect for the device. The power outlet should be near the device and be easily accessible.

WARNING Remove the power cord plug from the power outlet to disconnect overall power to the device.

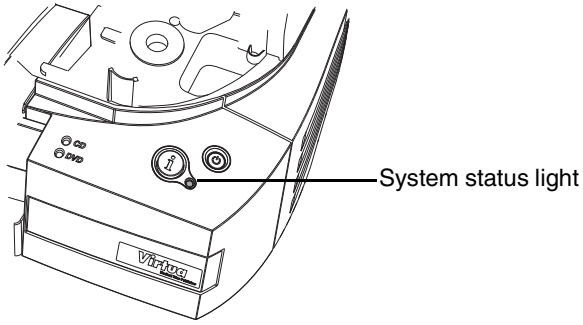
WARNING Grounding reliability can be achieved only when the equipment is connected to an equivalent receptacle marked "Hospital Only" (that is, "Hospital Grade").

CAUTION Before powering on the unit, make sure that the Recorder's pick arm is not holding a disc. If it is, remove the disc.

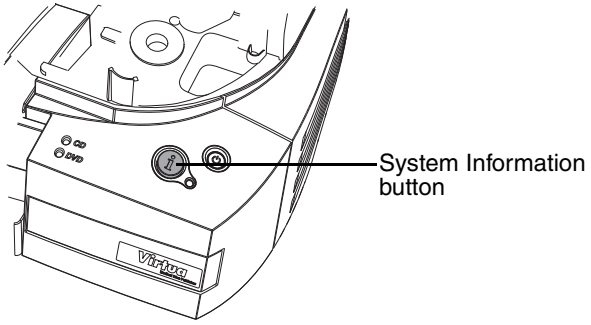
2. Press the System power button on the Controller front panel to power on the device.



When Virtua C has completed its startup successfully, the System status light at the front will be on. For more information about interpreting the System status light, refer to “Front Panel Status Lights” on page 13-4.



3. Press the System Information button.



If Virtua C has started up successfully, normally the narrated message “Virtua is ready to process jobs” plays. However, because the color ink cartridge has not been installed, you will hear this condition indicated in the narrated message.

You are now ready to install the ink cartridge.

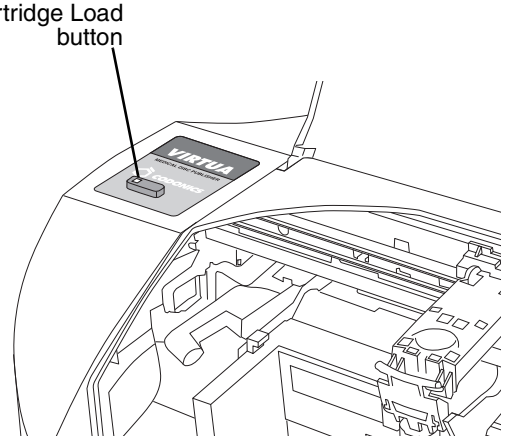
Installing the Color Ink Cartridge

NOTE: *Virtua C is designed to work with a certain brand of ink cartridges. Only use Codonics-recommended color ink cartridges to ensure proper operation of the device and proper labeling of the disc. Contact your Codonics representative for information about how to order the recommended brand of color ink cartridge.*

NOTE: *Never refill ink cartridges, as this can damage the printing mechanism and cause improper labeling of discs.*

To install an ink cartridge

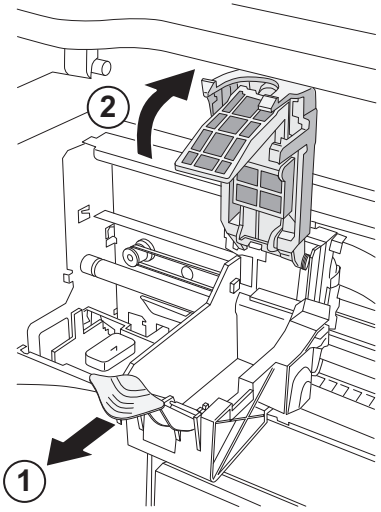
1. Open the cover.
2. Press the Ink Cartridge Load button.



Ink Cartridge Load button

3. Open the cartridge cover by pulling out on the blue hold-down clip.

   The cover is spring-loaded and will pop open.

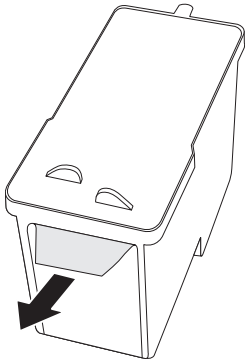


Opening the ink cartridge carrier cover

4. Remove the ink cartridge from its packaging.

   Once the ink cartridge is removed from its package, hold it from the sides.

5. Slowly remove the tape covering the cartridge's print head.

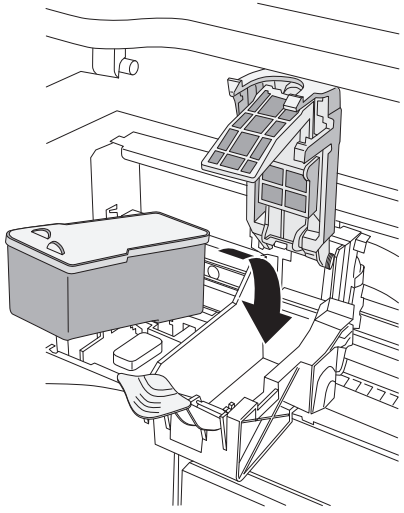


Removing ink cartridge print head tape

CAUTION Do not touch the copper area of the cartridge print head.

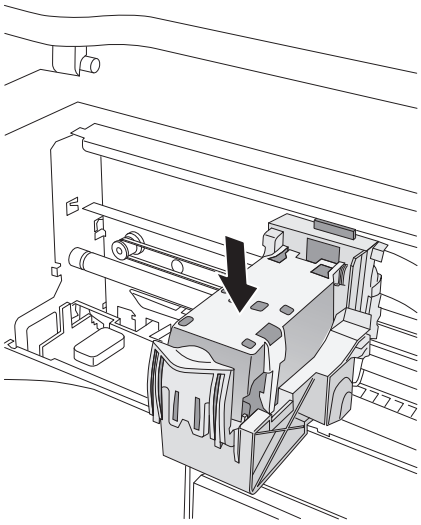
6. Insert the ink cartridge into its carrier carriage, copper end first.

   Hold the cartridge at a 45° angle as you slide it into its carrier carriage, then tilt the cartridge down until it fully drops into place.



Loading the ink cartridge

7. Close the cartridge cover until it snaps into place and is secured by the blue hold-down clip.



Cartridge cover closed

8. Close the cover.

   The System status light should be green.

If you are performing the initial device setup, you are now ready to set up the software. Go to Chapter 3 for more information.

3 Setting Up the Software

This chapter includes information you will need to set up the Virtua C software:

- Installing the software
- Specifying network settings
- Setting up the network firewall
- Creating user accounts
- Specifying system settings, such as the length of user inactivity before a user is automatically logged out of a session
- Specifying the default site information, and optionally creating additional Site Profiles
- Setting the system date and time
- Creating Job Profiles, which control how submitted studies are processed
- Setting up support for DICOM JPEG compressed file formats

The chapter also includes:

- Logging in and logging out of a user session
- Shutting down and rebooting the system
- A description of the SmartDrive and what information is stored on it

Additional setup tasks are covered elsewhere in this manual:

- For information about adding and managing custom disc labels, refer to Chapter 8.
- For information about setting the locale to ensure proper display of patient and site information, and date and time format, refer to Chapter 9.
- For information about setting up the optional Reporting feature to support receiving DICOM Structured Reports and Health Level 7 (HL7) reports, refer to Chapter 10.
- For information about setting up the optional Scheduled Archiving feature to support creating a set of discs that contain all studies received by Virtua C, refer to Chapter 11.

Installing the Software

The Codonics Virtua C Medical Disc Publisher contains operating software that can be installed from Virtua C's disc drive. Software installation requires about 45 minutes. This document describes the procedure to install Virtua C operating software.

NOTE: *New systems do not require software installation. Only perform these steps to install new software or when instructed by Codonics Technical Support.*

Before Installing Software

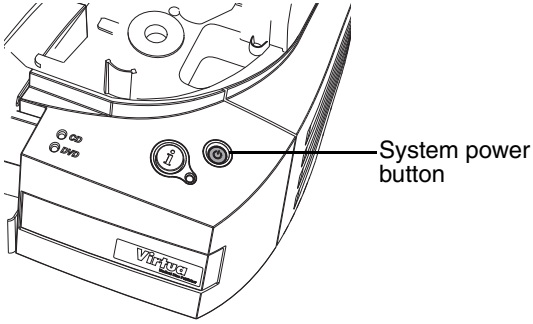
- Verify that Virtua C is properly assembled and the hardware is working.
- Read the Operating Software Release Notes before installing new software for more detailed information about the software and any issues you should be aware of.

- The SmartDrive must be connected during the installation procedure to allow updates and new features to be installed. All configuration information on the SmartDrive will be preserved.
- Allow approximately 45 minutes for the installation procedure.

Software Installation Procedure

To install the software

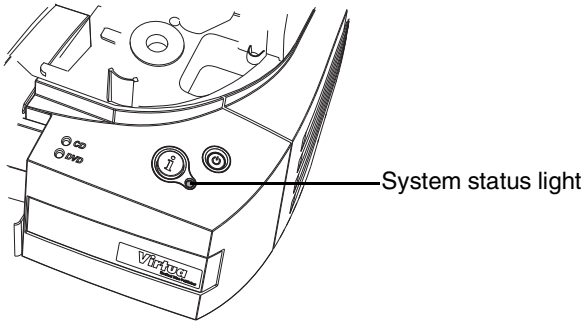
1. Make sure all jobs are complete before installing software.
2. If Virtua C is not powered on, press the System power button.
3. Open the Recorder cover.
4. Open the disc tray of the CD/DVD drive by pressing the disc eject button in the lower-right corner.
5. If there is a disc in the disc tray, remove it.
6. Place the Virtua C Operating Software disc in the tray with the printed label facing up.
7. Close the disc tray by gently pushing the front of the disc tray towards the drive. Leave the Recorder cover open.
8. Perform a soft shutdown by pressing and holding the System power button for about a second.



9. After the shutdown is complete, close the Recorder cover.
10. Press the System power button to start up Virtua C.

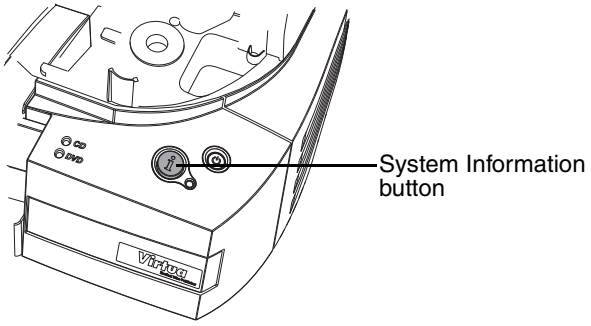
After powering Virtua C on, it will begin installing software from the Operating Software disc. The installation procedure runs automatically and requires about 45 minutes to complete. Several reboots will occur that are a normal part of the installation process.

When software installation has completed successfully, the System status light at the front will be green.



System status light

11. Press the System Information button.



If Virtua C has started up successfully, the narrated message "Virtua is ready to process jobs" will play. Also, the Operating Software disc is automatically ejected and placed in the output bin.

12. Remove the Operating Software disc from the output bin.

NOTE: *If Virtua C installation is successfully and Virtua C is ready, you should be able to access the Login screen from a web browser. For more information, refer to "Accessing Virtua C from a Web Browser" on page 3-13.*

Virtua C SmartDrive

The SmartDrive is a USB flash drive on which is stored critical system information, including configuration data.

CAUTION The SmartDrive must be inserted for the device to operate. If the SmartDrive is not inserted, the device can boot up but will not be able to process jobs.

The SmartDrive also allows you to move a device's configuration to another device. This feature is especially helpful when swapping devices for service purposes.

Note that a SmartDrive cannot be duplicated. That is, it cannot be used in two devices at the same time.

The SmartDrive stores the following information:

- **Software license code.** This is the serial number for the Virtua C software. All keyed features are keyed off of the License Code. This code is also printed on the SmartDrive's label.
- **Virtua C configuration.** This includes all of the profile files covered in this chapter. It also includes other system profiles and DICOM viewers.
- **Disc log files.** The system logs all recorded discs in these files. A disc log file is a comma-separated text file that can be imported into a spreadsheet. The file is useful for compliance with HIPAA and other regulations.

Creating and Modifying Profiles

Profile files are used to define settings for the system configuration, user accounts, site parameters, Job Profiles (which control how incoming studies will be recorded), and printed disc labels. These files are stored on the SmartDrive in the **\profiles** folders:

Profile files are text files. The general procedure for modifying these files is:

1. Verify that no jobs are currently being processed and no studies are being received.
2. Log out and shut down Virtua C (refer to "Logging Out" on page 3-56 and "Shutting Down and Rebooting" on page 3-56).

   Virtua C powers off at the end of the shutdown process.

CAUTION If the SmartDrive is removed improperly while a study is being processed, file corruption could occur.

NOTE: *If you do not shut down the system before removing the SmartDrive, a message displays in the user interface application indicating that the SmartDrive has been removed. Once it is reinserted, the system prompts you to reboot.*

3. Remove the SmartDrive, which is inserted in the USB port behind the green output bin.
4. Mount the SmartDrive in a USB port on a PC.

   The SmartDrive will appear as a standard USB flash drive.
5. Use a text editor that does not perform character formatting (for example, Notepad) to create or open the file, and to edit the file.
6. When finished creating or modifying the file on the SmartDrive, unmount the SmartDrive from the PC, then insert it back into Virtua C.
7. Power on Virtua C by pressing the System power button.

When starting up, Virtua C will read the updated profile files and use them for its configuration.

Subsequent topics in this chapter discuss specific profiles in detail.

Setting Up Network Profiles

Virtua C includes the following network-related features:

- A web server, allowing web access to the user interface from a web browser
- Support for one or more Network Profiles, to allow selection of different sets of network parameter settings
- The standard Windows XP Embedded firewall to block unauthorized connections to network services

These features are controlled through the parameter settings in Network Profiles. The parameters include the Virtua C's IP address, subnet mask, gateway address, and firewall settings.

Prior to attempting to access the Virtua C interface from a web browser, you must modify the default Network Profile to include your network-specific information.

Once Network Profiles are set up on the SmartDrive, a user with administrator privileges can modify network parameters and select which Network Profile to use from the browser-based user interface. For more information, refer to "Setting Network Parameters from the Setup Screen" on page 3-23.

Modifying the Default Network Profile

The default Network Profile file — **network.default.txt —** is preinstalled on the SmartDrive in the **\profiles\network** folder. The default IP address in this profile is 192.168.1.202.

For general information about modifying a profile, refer to "Creating and Modifying Profiles" on page 3-6.

Creating a Network Profile

Additional Network Profiles can be created to support the use of the device by more than one network. For example, if the device is in a mobile unit that travels between multiple hospitals, a Network Profile can be created for each hospital. The appropriate Network Profile can then be selected from the browser-based user interface.

NOTE: *For mobile coach users, when you are changing network settings during your reconfiguration process to the new site, change the Virtua C IP address before changing the IP address of the workstation used to access Virtua C.*

Network Profiles must be stored in the **\profiles\network** folder on the SmartDrive. The file name should be in the following format:

`network.`*`profilename`*`.txt`

Using a descriptive name for the *profilename* portion of the file name will help you and other administrator users identify the file. For general information about creating and modifying a profile, refer to "Creating and Modifying Profiles" on page 3-6.

Network Profile Parameters

The format and parameters of the Network Profile text file are defined in the following table.

Table 3-1. Network Profile Format and Parameters

Parameter	Description
`[ networkProfile ]`	Section identifier. This parameter must occur before all other parameters in the file. ***NOTE:*** *Do not change this identifier.*
`ipAcquisitionType_ =`	Specifies how the device will be assigned its IP address. Choices are: • DHCP. The address will be assigned automatically by the DHCP (Dynamic Host Configuration Protocol) server on the network. If selected, the IP address, gateway address, and subnet mask settings in the file are ignored. • Static (the default). The address will be a fixed address, as entered for the ipAddress_ parameter.
`ipAddress_ =`	The device's IP address. The default IP address for the default Network Profile (**network.default.txt**) is 192.168.1.202. This parameter is used if the ipAcquisitionType_ parameter is set to Static.
`gateway_ =`	IP address of the gateway for the subnetwork to which the device is connected. This parameter is used if the ipAcquisitionType_ parameter is set to Static.
`netmask_ =`	Subnet mask being used for the subnetwork to which the device is connected. This parameter is used if the ipAcquisitionType_ parameter is set to Static.
`port_ =`	The port number required for communication with other DICOM devices. The default port number is **104**.

Table 3-1. Network Profile Format and Parameters (Continued)

Parameter	Description
`networkName_ =`	A network name that can be used to access Virtua C remotely instead of using the Virtua C IP address. To specify the network name, enter it in the format: *NetworkName_3rdOctet_4thOctet* where 3rdOctet and 4thOctet are the third and fourth octets of the Virtua C IP address. The network name can be up to 15 characters long and can include only the following characters: upper or lower case letters (A–Z, a–z), numbers (0–9), dash (-), and underscore (_) The default network name is: virtua_*3rdOctet_4thOctet* Once the network name is configured, it will take effect the next time Virtua C is rebooted.
`doUseDefaultNetworkName_ =`	Specifies whether to use the default network name. Choices are: • True (the default). Use the default name — virtua_*3rdOctet_4thOctet* — for the network name. • False. Use the network name specified by the networkName_ parameter.
`speedDuplex_ =`	Numbers that specify the network speed and duplex mode to be used. Choices are: 0 = Autodetect (the default) 1 = 10 Mbps Half-Duplex 2 = 10 Mbps Full-Duplex 3 = 100 Mbps Half-Duplex 4 = 100 Mbps Full-Duplex 5 = 1000 Mbps Autoconfigure
`isBehindFirewall_ =`	Not currently implemented.

Table 3-1. Network Profile Format and Parameters (Continued)

Parameter	Description
`firewallEnabled_ =`	Specifies if the firewall is enabled or disabled. Choices are: True (enabled), False (disabled; the default).
`httpFirewallPortOpen_ =`	Specifies if the HTTP firewall port is open, allowing remote web browsers to connect to Virtua C and operate the device. Choices are: True (HTTP firewall port is open; the default), False (HTTP firewall port is closed).
`telnetFirewallPortOpen_ =`	Specifies if the Telnet firewall port is open, allowing incoming Telnet connections to Virtua C for diagnostic purposes. Choices are: True (Telnet firewall port is open), False (Telnet firewall port is closed; the default).
`smbFileShareFirewallPortOpen_ =`	Specifies if the SMB firewall port is open, allowing incoming SMB connections for remote mounting of mapped network drives. Choices are: True (SMB firewall port is open; the default), False (SMB firewall port is closed).
`ipAliasingEnabled_ =`	Specifies whether additional IP addresses will be assigned to Virtua C. Choices are: True (enabled), False (disabled; the default).
`additionalIpAddresses_ =`	Use to have the additional IP addresses be assigned to Virtua C, allowing a site to send more than one AE Title per IP address (e.g, Auto and Manual) from a workstation. To use this parameter, ipAliasingEnabled_ must be set to True. The setting range is 0 to 5 (the default is 1). This parameter can be used only if the ipAcquisitionType_ parameter is set to Static.

A typical default Network Profile would look like the following:

```
[ networkProfile ]
ipAcquisitionType_ = static
ipAddress_ = 10.10.10.71
gateway_ = 10.10.10.254
netmask_ = 255.255.255.0
port_ = 104
networkName_ = VIRTUA_1_202
doUseDefaultNetworkName_ = true
speedDuplex_ = 0
isBehindFirewall_ = false
firewallEnabled_ = false
httpFirewallPortOpen_ = true
telnetFirewallPortOpen_ = false
smbFileShareFirewallPortOpen_ = true
ipAliasingEnabled_ = false
additionalIpAddresses_ = 0
```

TIP: Copying an existing Network Profile to create a new one

To create new Network Profiles, you can copy an existing Network Profile — for example, ***network.default.txt****, which is preinstalled on every SmartDrive — rename it, and modify the parameters as necessary.*

Accessing Virtua C from a Web Browser

Virtua C includes a web server, allowing web access to the application interface from a web browser. This feature provides true simultaneous multi-user access to the device services.

To access Virtua C from a web browser

In the web browser's URL address field, enter the IP address assigned to Virtua C (as described in "Setting Up Network Profiles" on page 3-7). Once the connection is made successfully, the Login screen displays.

Note the following about remote web access:

- The computer on which the web browser is running must be on the same network as Virtua C.
- Only Windows Internet Explorer 6 web browser is supported.

Logging In

Preconfigured User Accounts

Two user accounts are preconfigured to allow initial access to the application:

- **admin**, which provides access to both standard and administrator functions
- **virtua**, which provides access to standard functions

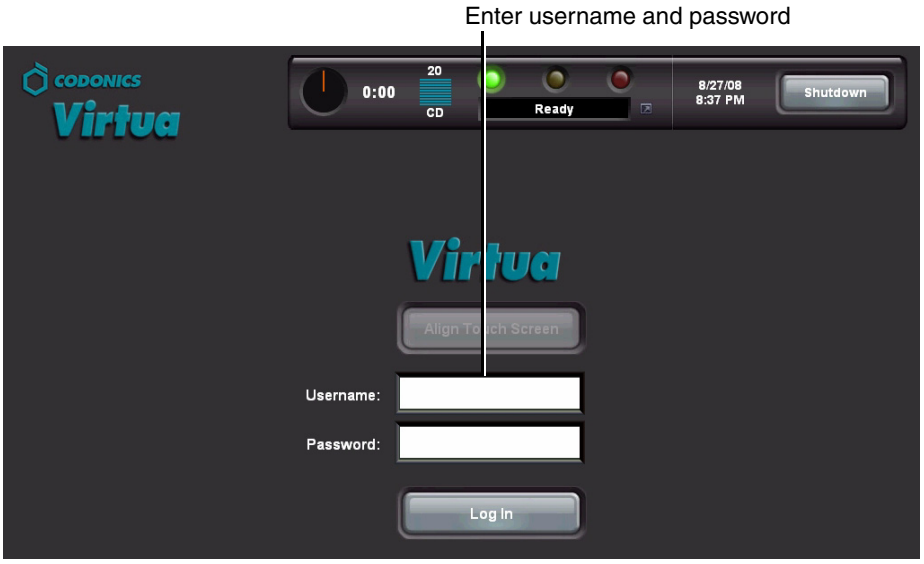
The default password for both preconfigured user accounts is **codonics**.

NOTE: *To prevent unauthorized access to the application, you should change the password for these user accounts the first time you log in. For more information, refer to "Changing a User's Password and Administrator Privileges" on page 3-20.*

Login Procedure

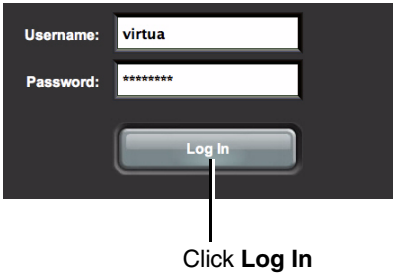
To log in

1. On the Login screen, enter a valid username and password.



Note that dots are displayed for the password entry, to protect the security of the actual password.

2. With the user login and password entered, click the **Log In** button.



The initial screen displayed after logging in is the **Studies** tab. This is the most commonly used screen.

For information about how to log out, shut down the system, or reboot the system, refer to “Logging Out” on page 3-56 and “Shutting Down and Rebooting” on page 3-56.

Setting Up User Accounts

User accounts define the login names and passwords that can be used to access the application, along with whether the user has administrator privileges.

User accounts are created by adding a user account text file to the **\profiles\user** folder on the SmartDrive.

Preconfigured User Accounts

Two preconfigured user accounts are provided that allow the system to be used without having to create additional User Profiles.

Login	Password	Privileges
virtua	codonics	standard
admin	codonics	administrator

Creating a User Account Profile

For general information about creating and modifying a profile, refer to "Creating and Modifying Profiles" on page 3-6.

User account profiles are stored in the **\profiles\user** folder on the SmartDrive. The file name should be in the following format:

`user.`*`username`*`.txt`

Including the user's name in the file will help you and other administrator users identify the file.

The format and parameters of the User Profile text file are defined in the following table.

Table 3-2. User Account Profile Format and Parameters

Parameter	Description
`[ UserProfile ]`	Section identifier. This parameter must occur before all other parameters in the file. ***NOTE:*** *Do not change this identifier.*
`username = login`	Defines the login for the user.
`encryptedPassword = password`	User's password. Because the system encrypts the password, it cannot be entered manually in this file. When adding a new User Profile, leave the password blank. Always set the password from the application; for more information, refer to "Changing a User's Password and Administrator Privileges" on page 3-20.
`[ UserProfile\Roles ]`	Section identifier. This specifies the start of permissions of the user. ***NOTE:*** *Do not change this identifier.*
`role1 =`	User role. • For a standard user, enter **`user`**. • To assign the user access to administrator functions, enter **`admin`**. Users assigned the **admin** role have access to administrator functions, including those on the **Setup** screen and some functions on the **Utilities** screen. These include viewing site parameters, changing the date and time, changing the network settings, and changing user passwords.

TIP: Copying an existing User Profile to create a new one
Two User Profiles are preinstalled on every SmartDrive: ***user.admin.txt*** *(administrator user) and* ***user.virtua.txt*** *(regular user). To create new profiles, you can copy these files, rename them, and modify the parameters as necessary.*

A User Profile for a regular user would look like the following:

```
[ UserProfile ]
username = vpatek
encryptedPassword = 28ed19ca7875d23f12e852ad
[ UserProfile\Roles ]
role1 = user
```

A User Profile file for a user with administrator privileges would look like the following:

```
[ UserProfile ]
username = supervisor
encryptedPassword = 45de18ac8783c24e11d962da
[ UserProfile\Roles ]
role1 = admin
```

Once a User Profile is created, the user password and administrator privileges option can be changed from the application, as described in the next topic.

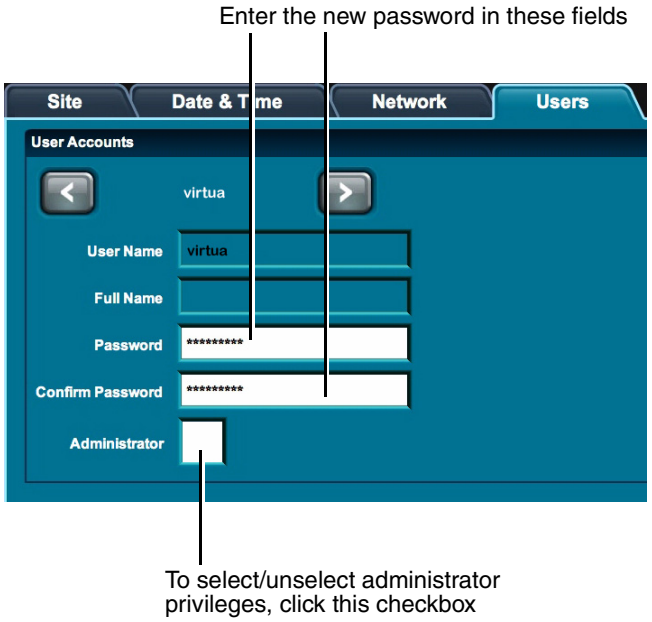
Changing a User's Password and Administrator Privileges

You must be logged in as a user with administrator privileges to change user passwords and administrator privileges.

To change a user password or administrator privileges

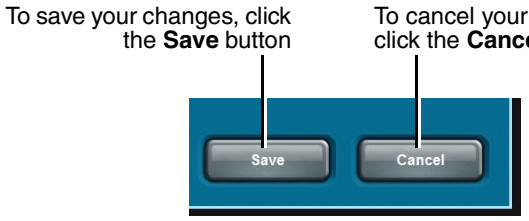
1. On the Main screen, click the **Setup** button to display the **Setup** screen, then the **Users** tab to display the user account parameters.
2. Use the scroll buttons to scroll to the user whose parameters you want to change.

3. Enter the new password in the **Password** and **Confirm Password** fields.
4. Click the **Administrator** checkbox to select/unselect administrator privileges for this user.



5. To save your changes, click the **Save** button.

   To cancel your changes, click the **Cancel** button.



Deleting a User Account

To delete a user account

Delete the User Profile from the SmartDrive.

For general information about accessing the User Profile file to delete it, refer to “Creating and Modifying Profiles” on page 3-6.

Note the **admin** and **virtua** user accounts are added automatically with the default password **codonics** if their User Profile files are not present on the SmartDrive when the system is booted.

Setting Network Parameters from the Setup Screen

You must be logged in as a user with administrator privileges to set the network parameters from the **Setup** screen.

To set the network parameters from the Setup screen

On the Main screen, click the **Setup** button to display the **Setup** screen, then the **Network** tab to display the network parameters.

The following table describes the network parameters that can be set from the **Network** tab. If parameters other than the basic IP address parameters are changed, Virtua C must be rebooted for the new settings to take effect (refer to “Shutting Down and Rebooting” on page 3-56).

If you are not familiar with network settings, see your network administrator for the proper settings.

Table 3-3. Network Parameters

Parameter	Description
Select Network Profile	A scrollable list of available Network Profiles. Use the arrow buttons to scroll to any profile and click the **Save** button to set the Virtua C active network settings to the settings in that profile. If you change individual settings and click the **Save** button, those settings will be applied and saved in the currently selected Network Profile. To reset the Network Profile to the profile that was originally selected or to cancel any changes, click the **Cancel** button.
DHCP or Static	Specifies how the device will be assigned its IP address: • **DHCP.** The address will be assigned automatically by the DHCP (Dynamic Host Configuration Protocol) server on the network. If selected, other IP address-related fields are disabled. • **Static.** The address will be a fixed address, as entered in the IP Address field. If selected, the address fields are enabled for editing.
IP Address	The device's IP address, either assigned by the DHCP server (DHCP) or manually entered (Static).
Subnet Mask	Subnet mask being used for the subnetwork to which the device is connected. Enabled for editing when **Static** is selected as the IP assignment method.
Gateway	IP address of the gateway for the subnetwork to which the device is connected. Enabled for editing when **Static** is selected as the IP assignment method.

Table 3-3. Network Parameters

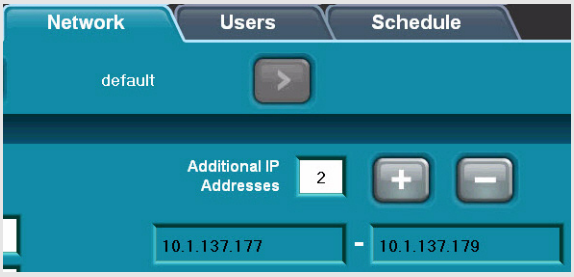
Parameter	Description
Additional IP Addresses	Use to assign additional IP addresses to allow a site to send more than one AE Title per IP address (e.g, Auto and Manual) from a workstation. Enabled when **Static** is selected as the IP assignment method. Click the **+** and **–** buttons to specify how many additional sequential IP addresses to configure, up to a total of five. The range of the sequence of multiple IP addresses is displayed below these buttons. 
DICOM Port Number	The port number required for communication with other DICOM devices. The default port number is **104**.
Network Name	A network name that can be used to access Virtua C remotely instead of using the Virtua C IP address. The default network name is based on the current IP address of the Virtua C, and has the format: *NetworkName_3rdOctet_4thOctet* To specify the network name, uncheck the **Use Default Network Name** option and enter the desired name. The network name can be up to 15 characters long and can include only the following characters: upper or lower case letters (A–Z, a–z), numbers (0–9), dash (-), and underscore (_) A network name change will take effect the next time the Virtua C is rebooted.

Table 3-3. Network Parameters

Parameter	Description
Network Speed/ Duplex	Specifies the network speed and duplex mode to be used. Choices are: Autodetect 10 Mbps Half-Duplex 10 Mbps Full-Duplex 100 Mbps Half-Duplex 100 Mbps Full-Duplex 1000 Mbps Autoconfigure

Any user can view the current network configuration settings by clicking the left portion of the Dashboard. For more information, refer to "Displaying System Status Details" on page 13-7.

Setting Up the System Profile

The System Profile includes information about the device, such as the media type configuration.

The System Profile file — **system.txt** — is preinstalled on the SmartDrive in the **\profiles** folder. You can modify this file to specify system-specific information. For general information about modifying a profile, refer to "Creating and Modifying Profiles" on page 3-6.

The format and parameters of the System Profile text file are defined in the following table.

Table 3-4. System Profile Format and Parameters

Parameter	Description
`[ SystemProfile ]`	Section identifier. This parameter must occur before all other parameters in the file. ***NOTE:*** *Do not change this identifier.*
`inputBin =`	Specifies the media type that is expected to be loaded in the input bin. Choices are: CD (the default), DVD. The approximate storage capacities of the two media types are: • CD: 650 MB • DVD: 4.5 GB If Virtua C is in Smart mode for media type detection (that is, the doSmartDetectLoadedMediaType parameter is set to True), Virtua C ignores the user entry for this parameter and sets it automatically. If Virtua C is not in Smart mode, this parameter can be changed from the **Ink and Media** tab in the **Utilities** screen. ***NOTE:*** *Users are responsible for making sure that the actual media type loaded in the input bin matches the choice for this parameter.*

Table 3-4. System Profile Format and Parameters (Continued)

Parameter	Description
`doSmartDetectLoadedMediaType =`	Specifies whether Smart Detect mode is enabled for media type configuration, during which Virtua C automatically picks and loads the top disc from the input bin to determine the media type that is loaded. Choices are: • True. The system automatically sets the inputBin parameter. Virtua C automatically picks and loads the top disc from the input bin and sets the inputBin parameter to match what is loaded. • False (the default). The user sets inputBin parameter. The inputBin parameter setting (CD or DVD) is determined from the System Profile on the SmartDrive or the user selection from the **Ink and Media** tab on the **Utilities** screen. For more information, refer to “Configuring and Loading Media” on page 5-2.
`maxStudyAge =`	Specifies the maximum number of days a study will be stored in the system before being removed by the hard drive storage recovery operation (only recorded studies will be removed). The value **0** (the default) indicates that this removal function not be used. Note that recorded studies will be removed when storage space is needed, regardless of this parameter’s setting.
`fullInstall =`	Specifies whether a full install will be performed during a software installation. Choices are: True, False (the default). If True, all studies and jobs will be purged during the installation process. If False or blank (that is, no value is specified), stored studies and jobs will remain after the installation process is compete.
`enableHotFolder =`	Specifies whether to activate any network-shared Direct to Disc hot folders. Choices are: True (enabled), False (disabled; the default). For more information, refer to “Direct to Disc” on page 5-18.

Table 3-4. System Profile Format and Parameters (Continued)

Parameter	Description
`screenSaver =`	Not applicable to Virtua C.
`beepingDisabled =`	Specifies whether the warning beep is enabled or disabled. Choices are: True (disabled), False (enabled; the default).
`autoLogoutIdleDelay =`	Specifies how many minutes of user inactivity will occur before the user is automatically logged out of their Virtua C session. The value **0** (the default) disables the logout timer.
`voiceDisabled =`	Specifies whether using an audible voice for status messages is enabled or disabled. Choices are: True (disabled), False (enabled; the default).
`systemVolume =`	Sets the volume level of the Virtua C local sounds. Values are from 1 (the lowest setting) to 5 (the highest setting). The default setting is 3.

A typical System Profile would look like the following:

```
[ SystemProfile ]
inputBin = CD
doSmartDetectLoadedMediaType = false
maxStudyAge = 30
fullInstall = false
enableHotFolder = false
screenSaver = waves
beepingDisabled = false
autoLogoutIdleDelay = 0
voiceDisabled = false
systemVolume = 3
```

Setting Up Site Profiles

Site Profiles include information about the site, such as the site name, address, and phone number. This profile is the source of the site information that is printed on disc labels and contained in the **readme.txt** and **index.htm** files on a recorded disc.

Virtua C supports multiple Site Profiles. The Site Profile can be specified in a Job Profile, so that when a different Job Profile is selected, site information will change accordingly. For more information about Job Profiles, refer to "Setting Up Job Profiles" on page 3-35.

Modifying the Default Site Profile

The default Site Profile file — **site.default.txt** — is preinstalled on the SmartDrive in the **\profiles\site** folder. You can modify this file to include your site-specific information. For general information about modifying a profile, refer to "Creating and Modifying Profiles" on page 3-6.

Creating a Site Profile

Additional Site Profiles can be created to support the use of the device by more than one site. For example, if the device is in a mobile unit that travels at multiple hospitals, a Site Profile can be created for each hospital. The appropriate Site Profile can then be specified in a Job Profile so that the hospital's site information prints on the disc labels and is included in the disc's **ReadMe.txt** file.

Site profiles must be stored in the **\profiles\site** folder on the SmartDrive. The file name should be in the following format:

```
site.profilename.txt
```

Using a descriptive name for the *profilename* portion of the file name will help you and other administrator users identify the file. For general information about creating and modifying a profile, refer to "Creating and Modifying Profiles" on page 3-6.

Site Profile Parameters

The format and parameters of the Site Profile text file are defined in the following table.

Table 3-5. Site Profile Format and Parameters

Parameter	Description
`[ SiteProfile ]`	Section identifier. This parameter must occur before all other parameters in the file. ***NOTE:*** *Do not change this identifier.*
`address0 =`	Address line 1.
`address1 =`	Address line 2.
`address2 =`	Address line 3.
`address3 =`	Address line 4.
`customLabelFileLocation =`	Not currently implemented.
`defaultImagerProfile =`	Not currently implemented.
`defaultJobProfile =`	Not currently implemented.
`demoSiteBurnDirectory =`	Not currently implemented.
`inactivityTimeout =`	Not currently implemented.
`isDemosite =`	Not currently implemented.
`logoFileLocation =`	Not currently implemented.
`siteDisclaimer =`	The disclaimer statement that will be printed on the disc.
`siteName =`	Typically, the full name of the site.
`phoneNumber =`	Phone number.
`url =`	Web address of the site.

A typical default Site Profile would look like the following:

```
[ SiteProfile ]
address0 = Codonics, Inc.
address1 = 17991 Englewood Drive
address2 = Middleburg Heights, OH 44130
address3 =
customLabelFileLocation =
defaultImagerProfile =
defaultJobProfile =
demoSiteBurnDirectory =
inactivityTimeout =
isDemoSite =
logoFileLocation =
siteDisclaimer = This disc contains confidential
medical information.  If you are not the intended
recipient or an authorized user, please contact the site
shown on this label.
siteName = Codonics
phoneNumber = (800)444-1198
url = www.codonics.com
```

TIP: Copying an existing Site Profile to create a new one

To create new Site Profiles, you can copy an existing Site Profile — for example, ***site.default.txt****, which is preinstalled on every SmartDrive — rename it, and modify the parameters as necessary.*

Viewing the Default Site Profile from the Application

You must be logged in as a user with administrator privileges to view the default Site Profile from the application.

To view the default Site Profile

On the Main screen, click the **Setup** button to display the **Setup** screen, then the **Site** tab to display the Site Profile information.

NOTE: *Site profiles other than the default profile can be viewed by opening the corresponding text files on the SmartDrive.*

NOTE: *The Screensaver function is not applicable to Virtua C.*

Setting the Date and Time

You must be logged in as a user with administrator privileges to set the date and time.

To set up the date and time

On the Main screen, click the **Setup** button to display the **Setup** screen, then the **Date & Time** tab to display the date and time.

When finished entering parameters, click the **OK** button to save the changes (or the **Cancel** button to cancel them). Virtua C reboots automatically.

Setting Up Job Profiles

Codonics Virtua C supports multiple Job Profiles, each of which can define a unique set of job parameters for recording studies to a disc. Parameters include the type of label to be printed, whether studies are recorded automatically without user intervention, and which DICOM viewer will be included on the disc.

When sending a study for recording from a DICOM application, the user specifies a Job Profile, which is passed to Virtua C as a Called AE Title. The Job Profile name is a parameter defined in each Job Profile file.

The following table includes the Job Profile files that are preinstalled on every SmartDrive.

Table 3-6. Preinstalled Job Profiles

Parameter	Description
job.default.txt	A study received with a Called AE Title that does not match an existing Job Profile is assigned this default profile.
job.auto.txt	The job is automatically queued for recording, without user intervention.
job.autoCD.txt	The job is automatically queued for recording on a CD, without user intervention.
job.autoCDSpeed.txt	Similar to job.autoCD.txt but with the following parameters optimized for speed: • printMode = color_good • discLabel = Ink_Saver • submitAutoRecordJob = onAssociationEnd • endOfStudyTimeout = 15 • discStudyGrouping = byStudy For more information on these parameters, refer to Table 3-7 on page 3-37.

Table 3-6. Preinstalled Job Profiles (Continued)

Parameter	Description
job.autoDVD.txt	The job is automatically queued for recording on a DVD, without user intervention.
job.autoDVDSpeed.txt	Similar to job.autoDVD.txt but with the following parameters optimized for speed: • printMode = color_good • discLabel = Ink_Saver • submitAutoRecordJob = onAssociationEnd • endOfStudyTimeout = 15 • discStudyGrouping = byStudy For more information on these parameters, refer to Table 3-7 on page 3-37.
job.manual.txt	The job is queued in the Studies list for manual recording, requiring user intervention.

NOTE: *The speed-optimized Job Profiles* ***job.autoCDSpeed.txt*** *and* ***job.autoDVDSpeed.txt*** *are intended to be used when one study is being recorded per disc. If multiple studies for a single patient will be recorded on the same disc, these Job Profiles should not be used.*

Creating a Job Profile

For general information about creating and modifying a profile, refer to "Creating and Modifying Profiles" on page 3-6.

Job Profiles are stored in the **\profiles\job** folder on the SmartDrive. The file name should be in the following format:

```
job.profilename.txt
```

Using a descriptive name for the *profilename* portion of the file name will help you and other administrator users identify the file.

The format and parameters of the Job Profile text file are defined in the following table.

Table 3-7. Job Profile Format and Parameters

Parameter	Description
`[ JobProfile ]`	Section identifier. This parameter must occur before all other parameters in the file. ***NOTE:*** *Do not change this identifier.*
`doAutoRecord =`	Choices are: True, False (the default). If True, the incoming study is automatically added to the Job List to be recorded. If False, the incoming study is added to the Studies list as a new job and requires user intervention to be recorded.
`autoMediaSelectStyle =`	Determines how Virtua C handles a job when mediaType is set to AUTO. Choices are: • bySize (the default). Virtua C selects the media type for the job based on the size of the job. • byMedia. Virtua C use the currently configured media, regardless of the type. For more information about how this parameter is used to determine the media type for a job, refer to "How Virtua C Determines the Media Type Required for a Job" on page 3-46.

Table 3-7. Job Profile Format and Parameters (Continued)

Parameter	Description
`doCreateJpegImages =`	Not currently supported.
`doEnableAutoRun =`	Choices are: True, False (the default). If True, the DICOM Viewer on the disc will be launched automatically when the disc is inserted into a Windows PC.
`doIncludeSelfCheckProgram =`	Specifies whether to include a self-check program on the disc. Choices are: True, False (the default). If True, the recorded disc will include a checksum and a disc integrity check program. The program can be run to check whether the original recorded data on the disc has been altered, whether the disc is a copy of an original, or whether the disc data has been corrupted over time or through improper handling.
`doVerifyDiscsAfterRecord =`	Specifies whether to perform a read-after-write disc verify as part of the data recording. Choices are: True, False (the default). If True, a data integrity check will be performed on the disc automatically at the conclusion of the recording operation. Verifying discs can double the record time, but provides the greatest assurance that the study data has been recorded properly.
`doPrintToDicomImager =`	Not currently supported.
`doLimitStudiesPerDiscToLabelCapacity =`	Specifies whether the number of studies recorded on a disc will be limited by the amount of study information that can be printed on the disc label. Choices are: True, False (the default). If True, the study capacity of the disc will be limited to the maximum number of studies that can be included on the disc's printed label. This could cause the job to be recorded across multiple discs.

Table 3-7. Job Profile Format and Parameters (Continued)

Parameter	Description
`doSafelyTruncatePatientNameOnLabel =`	Specifies whether to truncate the patient name on the printed disc label. Choices are: • True (the default), The name is truncated to 22 characters, followed by an ellipsis (...). • False. The length of the name is limited only by the printable space on the label.
`dicomImagerName =`	Not currently supported.
`physicianCopies=`	Specifies the number of disc copies to make for the physician. Default is 1.
`patientCopies=`	Specifies the number of disc copies to make for the patient. Default is 0.
`anonymizedCopies=`	Specifies the number of anonymized disc copies to make. Default is 0.
`legalCopies=`	Specifies the number of disc copies to make for legal or other purposes. Default is 0.
`discLabel =`	The file name of the label, or the root file name of a design family of labels, to be printed on the disc. Default is Physician for all but the speed-optimized Job Profiles, and Ink_Saver for the speed-optimized Job Profiles **job.autoCDSpeed.txt** and **job.autoDVDSpeed.txt**. Preinstalled label family choices are stored in the SmartDrive **\labels** folder.

Table 3-7. Job Profile Format and Parameters (Continued)

Parameter	Description
`discLabelPhysicianCopy =`	Specifies the label that will be used on physician copies of recorded discs. If this field is blank or contains the value No_Override (the default), the label specified in the discLabel parameter will be used for a physician copy.
`discLabelPatientCopy =`	Specifies the label that will be used on patient copies of recorded discs. If this field is blank or contains the value No_Override (the default), the label specified in the discLabel parameter will be used for a patient copy.
`discLabelAnonymousCopy =`	Specifies the label that will be used on anonymous copies of recorded discs. If this field is blank or contains the value No_Override (the default), the label specified in the discLabel parameter will be used for an anonymous copy.
`discLabelLegalCopy =`	Specifies the label that will be used on legal copies of recorded discs. If this field is blank or contains the value No_Override (the default), the label specified in the discLabel parameter will be used for a legal copy.

Table 3-7. Job Profile Format and Parameters (Continued)

Parameter	Description
`includedDicomViewer =`	Specifies the name of the file that contains the DICOM viewer application to be included on the disc. To include multiple DICOM viewer applications on a disc, add an includedDicomViewe**r** entry for each viewer. The DICOM viewer applications that are available to a site are included in the **\viewers** folder on the SmartDrive. The default viewer application is Clarity_Viewer.vwr (the Codonics Clarity Viewer for English). For additional information about this viewer, refer to "Codonics Clarity Viewer" on page 3-52. If the value is blank, no viewer will be included on the disc. ***NOTE:*** *At the time of publishing, English and Japanese Clarity Viewers, and the OsiriX® Viewer for the Apple® Macintosh® platform, are included standard with Virtua C. Other viewers are provided separately. For other supported third-party viewers, refer to the Virtua Viewers page at* ***www.codonics.com/Products/Viewers****.*
`mediaType =`	Specifies the type of media on which to record the studies. Choices are: CD (the default), DVD, AUTO. AUTO causes the device to select the media based on the setting of the autoMediaSelectStyle parameter. Jobs queued for a media type not currently loaded will remain queued until the proper media type is loaded. For more information about how this parameter is used to determine the media type for a job, refer to "How Virtua C Determines the Media Type Required for a Job" on page 3-46.

Table 3-7. Job Profile Format and Parameters (Continued)

Parameter	Description
`discStudyGrouping =`	With the doAutoRecord parameter set to True, specifies whether the images received for recording will be grouped for recording to disc by patient or study. Choices are: • byPatient (the default). If multiple studies for the same patient are received within the endOfStudyTimeout time, the studies will be recorded on the same disc. The default for all but the speed-optimized Job Profiles. • byStudy. One study per disc will be recorded. The default for the speed-optimized Job Profiles **job.autoCDSpeed.txt** and **job.autoDVDSpeed.txt**.
`matchPatientUsing =`	Specifies the patient demographic data that Virtua C uses to match an incoming DICOM image to a study in the Virtua C database. Choices are: • id_only • name_id_dob (the default) • name_id_sex • name_dob_sex • id_dob_sex For Virtua C to add an incoming image to a study, the patient information in the image must have an exact match with the patient information in the Virtua C database. For each of the choices other than id_only, the setting selects three of the following four patient demographics: Patient Name (name), Patient ID (id), Patient Date of Birth (dob), or Patient Sex (sex). This allows sites with systems that produces images with slightly different patient information to collect the images under the same study on Virtua C. ***NOTE:*** *Since id_only checks for only one setting, it is strongly recommended to use other choices.*

Table 3-7. Job Profile Format and Parameters (Continued)

Parameter	Description
`endOfStudyTimeout =`	Number of seconds after which an image is received with no other images for that job that the system assumes the job is complete. The default is 30 for all but the speed-optimized Job Profiles, and 15 for the speed-optimized Job Profiles **job.autoCDSpeed.txt** and **job.autoDVDSpeed.txt**. If doAutoRecord = True and this time-out occurs, a job for the images received to that point will be added to the Job List for recording.
`submitAutoRecordJob =`	Specifies that the job should be recorded automatically based on the endOfStudyTimeout setting or when the end of the DICOM association occurs. Choices are: • OnTimeout (the default for all but the speed-optimized Job Profiles). Recording will start automatically based on the endOfStudyTimeout setting. • OnAssociationEnd (the default for the speed-optimized Job Profiles **job.autoCDSpeed.txt** and **job.autoDVDSpeed.txt**). Recording will start automatically when the end of the DICOM association occurs. For more information about this function, refer to “Auto-Record Trigger” on page 3-47.
`postProcessingAction =`	Not currently implemented.
`siteProfileName =`	Specifies the Site Profile to use when printing the disc label. If no Site Profile name is specified, the default Site Profile is used. For more information, refer to “Setting Up Site Profiles” on page 3-30.

Table 3-7. Job Profile Format and Parameters (Continued)

Parameter	Description
`jobPriority =`	Specifies the priority for the job. High priority jobs will record before any normal priority jobs that have not yet started to record. Choices are: Normal (the default), High.
`printMode =`	Specifies the print quality and ink selection for disc labels. Choices are: • color_good. Color ink, shortest print time, good print quality. • color_better (the default). Color ink, moderate print time, better print quality. The default for all but the speed-optimized Job Profiles. • color_best. Color ink, longest print time, best print quality.
`dicomFileExtension =`	Specifies the DICOM file extension to add to DICOM files that are recorded on Virtua C discs (for example, .DCM, .DICOM, .DIC). The default is None (no file extension is added).

TIP: Copying an existing Job Profile to create a new one
To create new Job Profiles, you can copy an existing Job Profile — for example, ***job.default.txt*** *or* ***job.auto.txt****, which are preinstalled on every SmartDrive — rename it, and modify the parameters as necessary.*

A sample Job Profile would look like the following:

```
[ JobProfile ]
doAutoRecord = false
autoMediaSelectStyle = bySize
doCreateJpegImages = false
doEnableAutoRun = true
doIncludeSelfCheckProgram = false
doVerifyDiscsAfterRecord = true
doPrintToDicomImager = false
doLimitStudiesPerDiscToLabelCapacity = true
doSafelyTruncatePatientNameOnLabel = true
dicomImagerName = Default
physicianCopies = 0
patientCopies = 1
anonymizedCopies = 0
legalCopies = 0
discLabel = Physician
discLabelPhysicianCopy = No_Override
discLabelPatientCopy = No_Override
discLabelAnonymousCopy = No_Override
discLabelLegalCopy = No_Override
includedDicomViewer = Clarity_Viewer.vwr
includedDicomViewer = Japanese_Viewer.vwr
mediaType = CD
discStudyGrouping = byPatient
matchPatientUsing = name_id_dob
endOfStudyTimeout = 30
submitAutoRecordJob = OnTimeout
postProcessingAction = Save
siteProfileName = default
jobPriority = normal
printMode = color_better
dicomFileExtension = none
```

Media Types and Profile Parameter Settings

How Virtua C Determines the Media Type Required for a Job

The following table indicates how Virtua C determines what media type is required for a particular job. This determination is based on the autoMediaSelectStyle and mediaType parameter settings in the Job Profile being used for the job.

Table 3-8. Media Selection Based on Job Profile Settings

autoMediaSelectStyle Parameter Setting	mediaType Parameter Setting		
	CD	DVD	Auto
bySize	CD	DVD	Job size < 650 MB: CD Job size ≥ 650 MB: DVD
byMedia	CD	DVD	Currently configured media type

How Virtua C Determines the Currently Configured Media Type

Depending on how users would like to generally use media, Virtua C can be set up to use Smart Detect or Manual Detect modes to accommodate optimal media selection. For more information on Smart Detect and Manual Detect modes, refer to "Configuring and Loading Media" on page 5-2.

These modes are selected by the doSmartDetectLoadedMediaType parameter setting in the System Profile.

- If the setting is True, Smart Detect mode is enabled. The media type (CD or DVD) will be automatically detected by reading the top disc loaded from the input bin.
- If the setting if False, Manual Detect mode is enabled, and the media type will be determined from the inputBin parameter setting in the System Profile or the user selection on the **Ink and Media** tab on the **Utilities** screen.

Typical Media Type Parameter Setting Examples

Bias Toward Using CDs

If smaller files will be recorded (e.g., single patient studies) or there is a strong preference for using only CDs, use the following settings:

Profile	Parameter	Setting
System	inputBin	CD
System	doSmartDetectLoadedMediaType	False
Job	mediaType	CD
Job	AutoMediaSelectStyle	byMedia

Bias Toward Flexibility (Using Both CDs and DVDs)

If a wide range of job file sizes are anticipated to be recorded, use the following settings:

Profile	Parameter	Setting
System	inputBin	CD or DVD
System	doSmartDetectLoadedMediaType	True
Job	mediaType	AUTO
Job	AutoMediaSelectStyle	bySize

Auto-Record Trigger

Virtua C includes methods for improving automatic recording speed by reducing or eliminating the delay caused by the end-of-study timeout.

Background

When images are sent to Virtua C, a trigger is needed for Virtua C to determine that all images for an auto-record job have been received. This is normally done with an end-of-study timeout set to 30 seconds, which requires a 30-second delay from the end of transmission to the start of the recording process.

For some systems (typically with fast networks), this setting can be reduced to as low as 10 seconds. For other systems, the end of the DICOM association can be used as the trigger to eliminate this delay altogether.

NOTE: *Since all of the settings described here are in Job Profiles, they can be configured on a per-host basis. That is, different profiles can be set up and optimized for each sending host.*

NOTE: *Optimizing the auto-record trigger is important only for applications using the automatic recording mode (doAutoRecord = True in a Job Profile). Sites not using automatic recording can disregard this information.*

NOTE: *The methods described here will not work for all host systems and networks. Some experimentation may be required to find optimal settings that do not cause side-effects (described in the troubleshooting topics below).*

Method 1: Reducing End-of-Study Timeout

Job Profiles include an endOfStudyTimeout parameter that tells the Virtua how long to wait after the last image is received before considering a study (or a group of studies for the same patient) to be complete and beginning the automatic recording process. This value defaults to 30 seconds for most Job Profiles. The timeout can be reduced to as low as 10 seconds to increase system performance and reduce the time required to automatically record a disc.

Configuration Guidelines

The endOfStudyTimeout parameter should be set to the highest expected delay from the end of transmission of one image to the end of transmission of the next. The faster and more reliable the network is, the lower the timeout value can be set. Also, smaller images, which transfer more quickly, allow a lower timeout value than larger images. It may take some experimentation to find the optimal setting.

Troubleshooting

If the endOfStudyTimeout is set too low, it may result in duplicate discs (or sets of discs for multi-disc jobs) being recorded for the same study, with some of the discs containing an incomplete set of images. If this occurs, even occasionally, increase the endOfStudyTimeout setting.

Method 2: Trigger on End of Association

Some host systems open one DICOM association for the entire study (for all images) or several simultaneous associations for the entire study with groups of images. For these hosts, the auto-record trigger can be based on the last association closing without the need to wait for a timeout. This mode provides the fastest time to automatically record a disc.

Configuration Guidelines

To allow auto-record to be triggered by the last association closing for a study, set submitAutoRecordJob = onAssociationEnd. To set auto-record back to being triggered by the end-of-study timeout, set submitAutoRecordJob = onTimeout (the default setting for most Job Profiles).

Troubleshooting

If submitAutoRecordJob = onAssociationEnd and the sending host is not compatible with this mode (e.g., it opens one DICOM association per image), duplicate discs (or sets of discs for multi-disc jobs) will be recorded for the same study, with some of them containing an incomplete set of images. If this problem occurs, set submitAutoRecordJob = onTimeout for the Job Profile used by this host or select a different Job Profile with this setting.

NOTE: *Setting submitAutoRecordJob = OnTimeout with the endOfStudyTimeout parameter set too low would cause the same symptoms as described above.*

NOTE: *Using the end-of-association to trigger an auto-record job should not be done if multiple studies from the same patient are being sent back-to-back to record on the same disc (discStudyGrouping = byPatient), unless the sending host system actually holds the association open between the individual studies or consistently sends the studies simultaneously.*

NOTE: *If submitAutoRecordJob = onAssociationEnd, the study will be considered complete if the endOfStudyTimeout time elapses, even if the association is left open.*

Supporting DICOM JPEG Formats

Virtua C Job Profiles can be configured to allow Virtua C to receive and record the following DICOM JPEG compressed image formats: JPEG Baseline, JPEG Extended, JPEG Lossless, JPEG2000 Lossless, and JPEG2000 Lossy. Compressed images can be optionally decompressed to allow recording on disc with viewers that do not support compressed images.

The parameters that can be included as one or more additional lines in a Job Profile text file to support DICOM JPEG compression/decompression are defined in the following table. For general information about creating or modifying a Job Profile, refer to "Setting Up Job Profiles" on page 3-35.

Table 3-9. DICOM JPEG Compression Parameters in a Job Profile

Parameter	Description
`jpegBaselineSupport =`	Specifies the JPEG Baseline compression/decompression support. Choices are: • None (the default). Virtua C does not accept data that is JPEG Baseline. • Preserve. Virtua C accepts data that is JPEG Baseline and stores it in compressed format. • Decompress. Virtua C accepts data that is JPEG Baseline and stores it in decompressed format.

Table 3-9. DICOM JPEG Compression Parameters in a Job Profile

Parameter	Description
`jpegExtendedSupport =`	Specifies the JPEG Extended compression/ decompression support. Choices are: • None (the default). Virtua C does not accept data that is JPEG Extended. • Preserve. Virtua C accepts data that is JPEG Extended and stores it in compressed format. • Decompress. Virtua C accepts data that is JPEG Extended and stores it in decompressed format.
`jpegLosslessSupport =`	Specifies the JPEG Lossless compression/ decompression support. Choices are: • None (the default). Virtua C does not accept data that is JPEG Lossless. • Preserve. Virtua C accepts data that is JPEG Lossless and stores it in compressed format. • Decompress. Virtua C accepts data that is JPEG Lossless and stores it in decompressed format.
`jpeg2000LosslessSupport =`	Specifies the JPEG2000 Lossless compression/ decompression support. Choices are: • None (the default). Virtua C does not accept data that is JPEG2000 Lossless. • Preserve. Virtua C accepts data that is JPEG2000 Lossless and stores it in compressed format. • Decompress. Virtua C accepts data that is JPEG2000 Lossless and stores it in decompressed format.

Table 3-9. DICOM JPEG Compression Parameters in a Job Profile

Parameter	Description
`jpegLossySupport =`	Specifies the JPEG2000 Lossy compression/ decompression support. Choices are: • None (the default). Virtua C does not accept data that is JPEG2000 Lossy. • Preserve. Virtua C accepts data that is JPEG2000 Lossy and stores it in compressed format. • Decompress. Virtua C accepts data that is JPEG2000 Lossy and stores it in decompressed format. ***NOTE:*** *Use of lossy compression with medical images may not result in clinically acceptable images.*

Sample DICOM JPEG compression settings that could be added to a Job Profile are:

```
jpegBaselineSupport = Decompress
jpegExtendedSupport = Decompress
jpegLosslessSupport = Decompress
jpeg2000LosslessSupport = Decompress
jpegLossySupport = None
```

Codonics Clarity Viewer

Virtua C provides the Codonics Clarity Viewer, which can be included on any disc, for reviewing DICOM images. The Clarity Viewer is compatible with Microsoft Windows ME, 2000, and XP operating systems.

The viewer is intended for post-diagnosis review of the images and provides basic functions, including:

- Window and level
- Pan and zoom
- Forward and backward image navigation

- Display and No Display options for study text
- Basic measurement capabilities
- Study and series selection

Sample Job Profile Creation

Following are the steps used to create a sample Job Profile starting with the default Job Profile, but with the following changes:

- The profile name is **patient** (that is, the disc is intended for the patient only)
- Studies should be recorded automatically, without user intervention
- Only one copy should be made, and that one is for the patient
- The end of study will be triggered by the DICOM association closing

1. Verify that no jobs are currently being processed and no studies are being received.
2. Log out and shut down the system (refer to "Logging Out" on page 3-56 and "Shutting Down and Rebooting" on page 3-56).

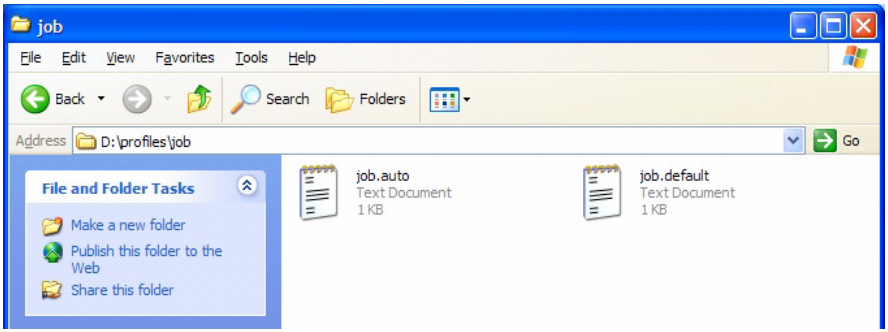
   The device powers off at the end of the shutdown process.

NOTE: *If you do not shut down the system before removing the SmartDrive, a message displays indicating that the SmartDrive has been removed. Once it is reinserted, the system prompts you to reboot.*

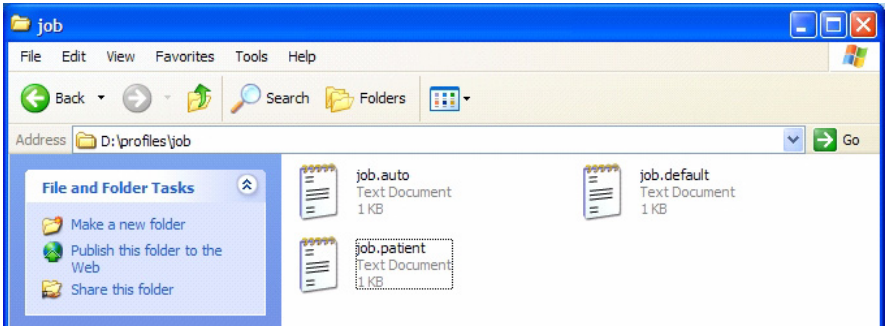
3. Remove the SmartDrive from the USB port.
4. Mount the SmartDrive in a USB port on a PC.

   The SmartDrive will appear as a standard USB flash drive.

5. From Windows Explorer, open the folder **\profiles\job** on the SmartDrive.



6. Select the file **job.default** and copy it to a new file called **job.patient**.



7. Use a text editor (for example, Notepad) to open the file for editing.
8. Make the following modifications to the settings (shown in bold):

```
[ JobProfile ]
doAutoRecord = true
autoMediaSelectStyle = bySize
doCreateJpegImages = false
doEnableAutoRun = true
doIncludeSelfCheckProgram = false
doVerifyDiscsAfterRecord = false
doPrintToDicomImager = false
doLimitStudiesPerDiscToLabelCapacity = false
```

```
doSafelyTruncatePatientNameOnLabel = true
dicomImagerName = Default
physicianCopies = 0
patientCopies = 1
anonymizedCopies = 0
legalCopies = 0
discLabel = Physician
discLabelPhysicianCopy = No_Override
discLabelPatientCopy = No_Override
discLabelAnonymousCopy = No_Override
discLabelLegalCopy = No_Override
includedDicomViewer = Clarity_Viewer.vwr
mediaType = CD
discStudyGrouping = byPatient
matchPatientUsing = name_id_dob
endOfStudyTimeout = 30
submitAutoRecordJob = onAssociationEnd
postProcessingAction = Save
siteProfileName = default
jobPriority = normal
printMode = color_better
dicomFileExtension = none
```

9. When finished modifying the file, save it, unmount the SmartDrive from the PC, and then insert it back into the Virtua C USB port.

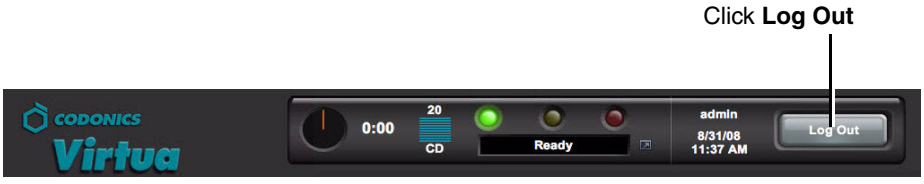
10. Power on Virtua C by pressing the System power button.

The Job Profile called “patient” will now be available for DICOM users to select when submitting studies to the device for recording. A Storage device must also be set up on the DICOM host with an AE Title called “patient.” For more information about configuring a DICOM host to support submitting studies to Virtua C, refer to Chapter 4.

Logging Out

To log out

Click the **Log Out** button at the top right of the screen.



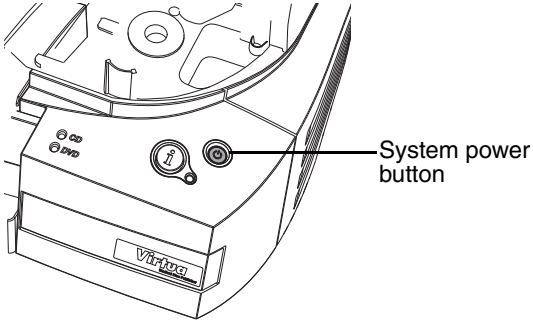
The Login screen displays.

Shutting Down and Rebooting

Before attempting to shut down or reboot Virtua C, make sure that all jobs have finished and all users have logged out.

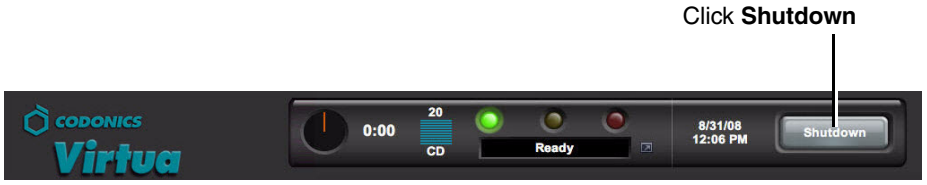
To shut down or reboot the system

Perform a soft shutdown by pressing the System power button for about a second.

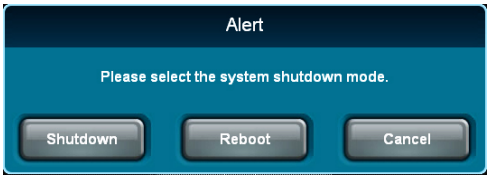


OR

1. From the Login screen, click the **Shutdown** button at the top right of the screen.



You are prompted as to whether you want to shut down the system, reboot the system, or cancel the shutdown.



2. Click the desired shutdown option.

Shutdown is complete when the front panel status lights turn off. If rebooting Virtua C, startup is complete when the System status light is green again.

NOTE: *If the system becomes unresponsive, press and hold the System power button for at least 5 seconds to perform a hard shutdown.*

NOTE: *Shutting down while a study is being sent might leave an incomplete study on Virtua C.*

4

Sending Studies to Virtua C

Configuring a Typical DICOM Host

Codonics Virtua is a DICOM Storage Class SCP (Service Class Provider) that can accept incoming DICOM Store associations.

Any system that supports DICOM Store should work with the device. Typical DICOM hosts that would connect to the device include:

- Modality workstations
- PACS workstations
- Primary and secondary image acquisition systems

Configuring a DICOM host to send images to the device requires the following settings:

- **The device hostname or IP address.** The device must be configured with an IP address that is accessible from the DICOM host.
- **DICOM TCP port.** The device uses the TCP port number set up in the network configuration. For more information, refer to "Setting Network Parameters from the Setup Screen" on page 3-23.

- **DICOM AE Title.** The device uses the Called AE Title from the DICOM host to control the media type (CD or DVD), content, and printed label on the disc. For more information on how the device uses Called AE Titles, refer to "Sending Studies to Record to Disc" below.

Most DICOM hosts require these settings to successfully connect to the device. Specific details about how to configure a host are usually found in the product's documentation. Codonics Technical Support also has information about how many systems are configured.

Sending Studies to Record to Disc

DICOM Store is the primary method used to send radiographic studies to the device.

How a study will be recorded to disc is controlled by specifying preset combinations of job settings stored in the device, called *Job Profiles*. The device makes each Job Profile available to the DICOM Store user as a Called AE Title. The DICOM Store user can then pick the Called AE Title that corresponds to the Job Profile to be used for a particular study recording job.

The device provides the standard Job Profile AE Titles described in the following table.

Table 4-1. Preinstalled Job Profile AE Titles

Called AE Title	Recording Behavior
Manual	The job is queued in the Studies list for manual recording, requiring user intervention.
Auto	The job is automatically queued for recording, without user intervention.
AutoCD	The job is automatically queued for recording on a CD, without user intervention.

Table 4-1. Preinstalled Job Profile AE Titles (Continued)

Called AE Title	Recording Behavior
AutoCDSpeed	Similar to AutoCD but with the following Job Profile parameters optimized for speed: • printMode = color_good • discLabel = Ink_Saver • submitAutoRecordJob = onAssociationEnd • endOfStudyTimeout = 15 • discStudyGrouping = byStudy For more information on these parameters, refer to Table 3-7 on page 3-37.
AutoDVD	The job is automatically queued for recording on a DVD, without user intervention.
AutoDVDSpeed	Similar to AutoDVD but with the following Job Profile parameters optimized for speed: • printMode = color_good • discLabel = Ink_Saver • submitAutoRecordJob = onAssociationEnd • endOfStudyTimeout = 15 • discStudyGrouping = byStudy For more information on these parameters, refer to Table 3-7 on page 3-37.
Default	Default mode is used when the Called AE Title does not match any Job Profiles. Default job options are the same as Manual mode job options.

Specific settings associated with Auto and Manual modes can be changed during the record procedure (refer to "Job Options" on page 5-12). A site can also create additional custom Job Profiles. The device supports up to 100 Job Profiles. Job Profiles are stored on the SmartDrive to simplify transfer of settings when a device is swapped for service.

There are many recording and labeling settings that can be controlled by Job Profile parameters. For more information about creating and modifying Job Profiles, and all of the parameters that can be set, refer to “Setting Up Job Profiles” on page 3-35.

5 Recording and Labeling a Disc

Jobs

This chapter discusses jobs and how to use them to record and label discs.

Jobs control what data is recorded onto discs and how many discs are created. A job always contains at least one study and includes other information necessary to record and label the disc. Information such as media type (CD or DVD), number of copies, DICOM viewer, address of the site, and label design are included in a job.

A list of the current jobs can be viewed on the **Discs** tab.

Configuring and Loading Media

To properly record jobs, the Virtua C media type — CD or DVD — must be configured, with that media type loaded in the input bin. The media type that Virtua C expects to be loaded is determined differently, depending on whether Smart Detect or Manual Detect mode is being used. The mode is determined by whether the System Profile doSmartDetectLoadedMediaType parameter setting is enabled or disabled. For more information about this and other profile parameters that affect media type detection, refer to "Media Types and Profile Parameter Settings" on page 3-46.

Configuring Media Type and Loading Media — Manual Detect Mode

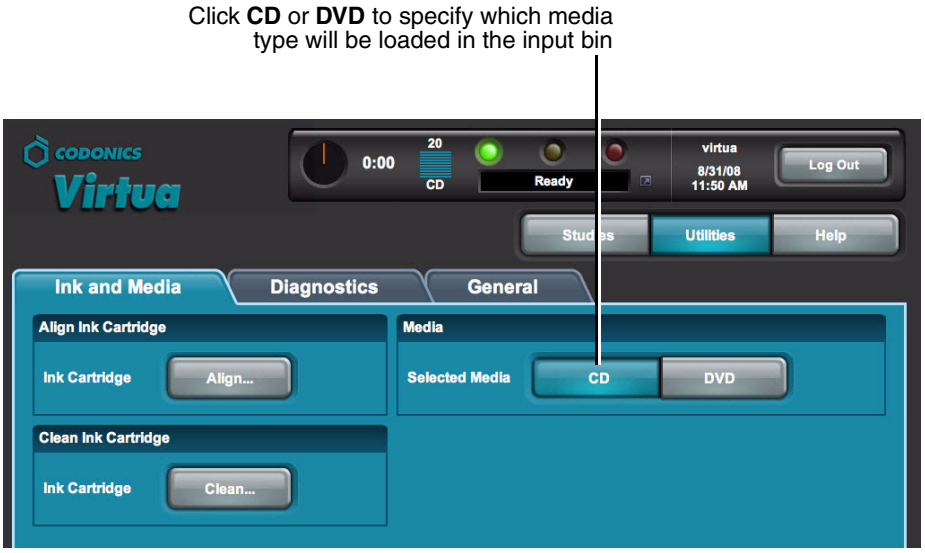
If Smart Detect mode is disabled, then Virtua C is in Manual Detect mode. In Manual Detect mode, the user controls which media type is configured, and thus assumed to be loaded in the input bin, by selecting it in the **Ink and Media** tab on the **Utilities** screen.

Manual Detect mode is useful for sites who primarily use one type of media.

To configure the desired media type and load the media in Manual Detect mode

1. Wait for any jobs currently being processed to complete.
2. Click the **Utilities** button on the Main screen, then click the **Ink and Media** tab.

3. Select the media type.



4. Open the top cover.
5. Load the media of the type selected in step 3 into the input bin. Remove any discs that are of the other media type.
6. Close the top cover.

If Virtua C detects that the wrong media type is loaded, an error is displayed in the Dashboard. Also, the System status light and the corresponding CD or DVD status light are yellow. No jobs are processed until discs of the selected media type are loaded in the input bin, or the selected media type is changed.

Configuring Media Type and Loading Media — Smart Detect Mode

Smart Detect mode is useful for sites who change media types frequently.

With Smart Detect mode enabled, when Virtua C starts up or whenever the cover is opened and then closed, it loads the first disc in the input bin and detects its media type. Virtua C assumes that all of the other discs in the input bin are of the same media type and sets that type as the configured media type. The selected media type is displayed in the Dashboard.

Virtua C then waits for and processes all jobs that have specified the configured (and loaded) media type. If Virtua C finishes all of the jobs for the configured media type, and there are jobs for the other media type queued, the yellow light in the Dashboard turns on and a status message displays indicating that the jobs and media type are mismatched. Also, the System status light and the corresponding CD or DVD status light are yellow. In this case, you have to replace the current discs in the input bin with those of the other media type.

NOTE: *In Smart mode, if you replace the discs in the input bin but a disc of the other media type is already loaded in the CD/DVD recorder, Virtua C will not recognize that the media type has changed. Check the top disc to see whether it matches the media type you just loaded.*

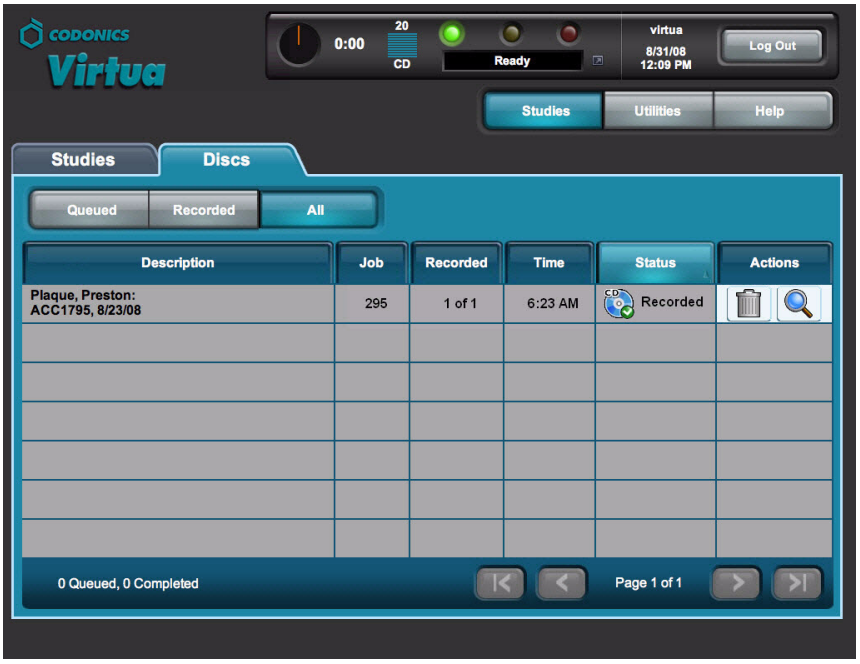
To load the desired media type in Smart Detect mode

1. Wait for any jobs currently being processed to complete.
2. Open the top cover.
3. Load media of the desired type into the input bin. Remove any discs that are of the other media type.
4. Close the top cover.

NOTE: *Do not open the top cover while Smart Detection of the loaded media is in process.*

Processing Jobs in Auto Mode

If a study is received using a Job Profile with Auto mode selected, the study is automatically added to the queue on the **Discs** tab, with the recording and labeling options as set in the Job Profile.



When the disc recording and labeling is completed, the disc is placed in the output bin.

Jobs that do not fit on one disc are automatically split across multiple discs.

In Auto mode, the studyDiscGrouping parameter in the Job Profile can be modified to group incoming studies together by patient instead of recording them individually. If the byPatient option is selected, multiple studies for the same patient will be included in the job. For more information about this setting, refer to “Setting Up Job Profiles” on page 3-35.

Processing Jobs in Manual Mode

If a study is received using a Job Profile with Manual mode selected, the study is added to the Studies list. Recording studies in the Studies list requires user intervention.

The following procedure describes how to record studies in the Studies list. For more information about the Studies list — including sorting and filtering the list, displaying information about a study, and deleting studies in the list — refer to Chapter 6.

To record studies in the Studies list

1. Click the **Studies** button on the Main screen, then click the **Studies** tab.

2. Click each of the studies that you want to include on the disc.

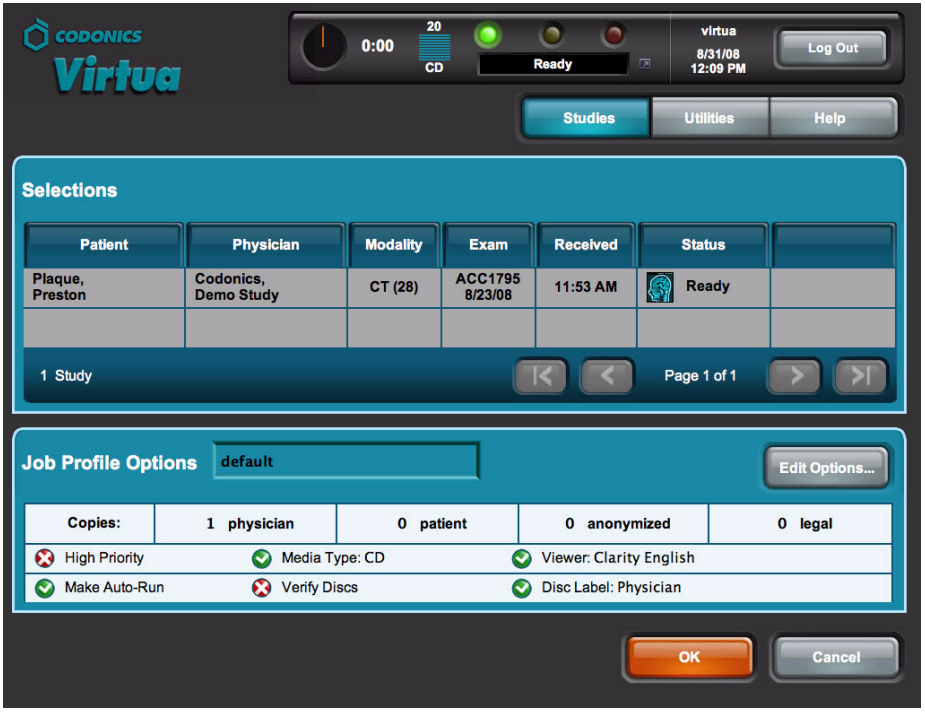
   Each selected study is indicated by a check mark and is highlighted. To unselect a study, simply click it again.

NOTE: *The* ***Select All*** *and* ***Unselect All*** *buttons are disabled when the* ***All*** *filter is selected.*

3. When you have selected the studies you want to record on the disc, click the **Record** button.

NOTE: *If multiple studies are selected to record on the same job, an alert is displayed to notify you of this condition and allow you to continue or cancel the job.*

The **Selections/Options** screen displays, indicating the job options that will be used for the selected studies.

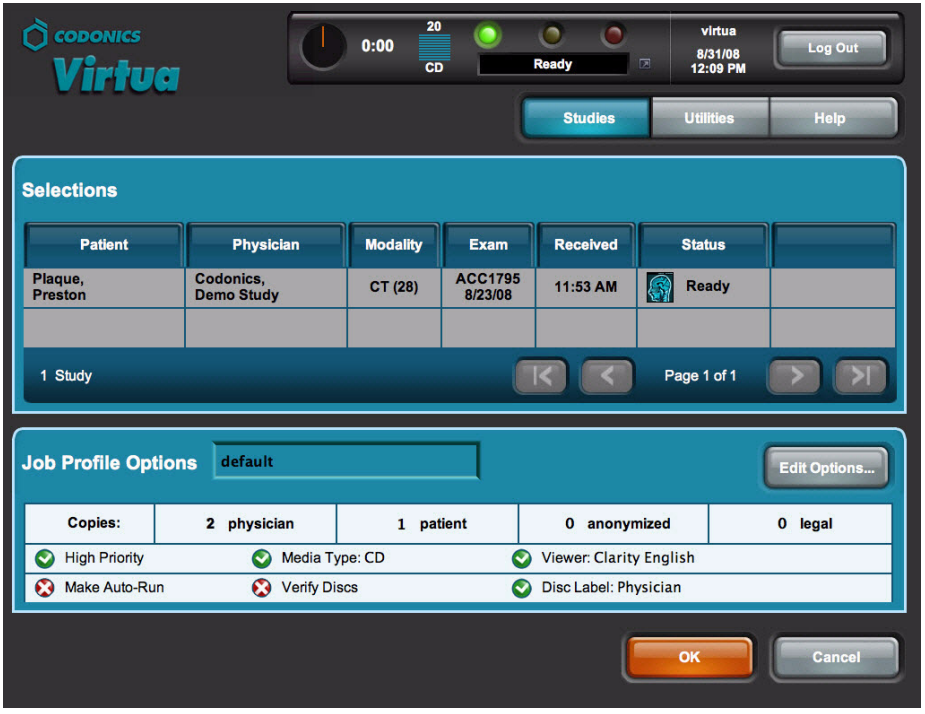


4. To change the job options, or to select a different Job Profile, click the **Edit Options** button.

   The **Edit Job Options** window displays. The option settings default to the settings defined for the Job Profile (AE Title) to which the study was sent.

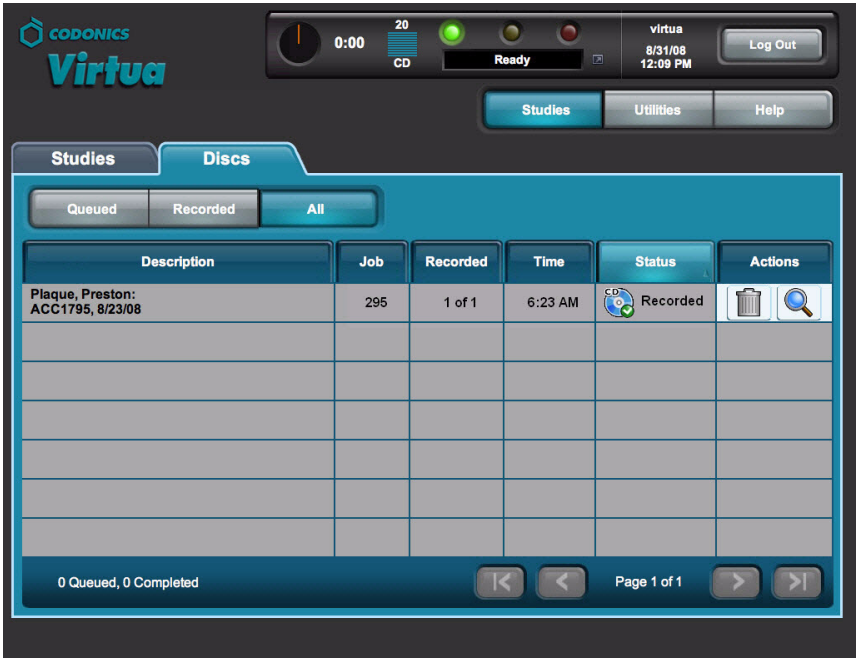
5. Change the job options as needed. For a description of the options, refer to “Job Options” on page 5-12.
6. When you are finished making changes to the options, click the **OK** button (or the **Cancel** button to cancel the changes).

Any changes you make are reflected in the **Job Profile Options** panel. In this example, the number of disc copies was changed to **2** for the physician and **1** for the patient. Also, the Priority setting was changed to High Priority and the Make Auto-run setting was disabled.



7. When you are ready to record the selected studies, click the **OK** button.

A job is created and added to the Discs queue on the **Discs** tab, prioritized in the order in which it was received. The **Discs** tab is displayed, showing the jobs queued for processing.



Jobs that do not fit on one disc are automatically split across multiple discs.

Job Options

The following table describes the job options that you can change prior to recording a study to disc.

Table 5-1. Job Options

Option	Description
Select Job Profile	Click the arrow buttons to scroll through the list of available Job Profiles. Changing the Job Profile updates the options for the current job to the settings defined for the selected profile.
Disc Label	Type of label to be printed on the disc. For more information about available disc labels, refer to Chapter 8.

Table 5-1. Job Options (Continued)

Option	Description
Media	Click the appropriate **Media** button to specify the type of media on which to record the job. Selecting the **Auto** button causes the device to choose the media depending on the autoMediaSelectStyle parameter setting in the current Job Profile: • **bySize.** The media type is chosen based on the size of the job. Jobs requiring less than 650 MB are recorded on CDs; those requiring more than 650 MB are recorded on DVDs. • **byMedia.** The media type is set to the currently configured media type, regardless of the size of the job. For information about how to set this parameter, refer to "Setting Up Job Profiles" on page 3-35. ***NOTE:*** *Make sure that the media type for all discs being loaded into the input bin matches the assigned media type.*
DICOM Viewers	Specifies the DICOM viewer applications to include on the disc. For instructions on how to select viewers, refer to "Selecting DICOM Viewers" on page 5-15. At the time of publication, choices are: No DICOM Viewer, Clarity English (the Codonics Clarity English viewer), Japanese Viewer (the Japanese version of the Clarity Viewer), and any other purchased viewers. ***NOTE:*** *The Clarity Viewers are included standard with Virtua C. Other viewers are sold separately. For other supported third-party viewers, refer to the Virtua Viewers page at* ***www.codonics.com/Products/Viewers****.*
Recording Options: Make Auto-Run	If selected, the DICOM Viewer on the disc will be launched automatically when the disc is inserted into a Windows PC.
Recording Options: Verify Discs	If selected, a read-after-write verification will be performed on the disc automatically at the conclusion of the recording operation. Verifying discs can double the record time, but provides the greatest assurance that the study data has been recorded properly.
Recording Options: High Priority	If selected, the job will be assigned a high priority, and will be processed before jobs with a normal priority.

Table 5-1. Job Options (Continued)

Option	Description
Copies	Specifies the number of disc copies to make for each of the following recipients: Physician, Patient, Anonymized, and Legal. The system records the type and number of copies that were created in the job log file on the SmartDrive to assist organizations with tracking discs for HIPAA and other regulatory compliance. For information about the optional disc formats, refer to “Optional Disc Formats” on page 5-14.

NOTE: *Changing settings on the Edit Job Options window do not update the Job Profile itself. The Job Profile is simply a starting point for settings used by the current job.*

Optional Disc Formats

The following table describes the optional disc formats.

Table 5-2. Optional Disc Formats

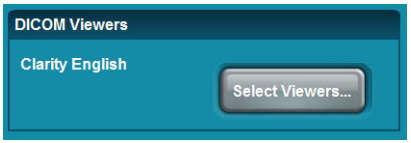
Recipient Disc	Description
Physician	Only disc type that will have reports attached. Labeled as: Physician.
Patient	Labeled as: Patient.
Anonymized	Patient name and demographics not included. Labeled as: Anonymized.
Legal	Same information as Patient disc. Labeled as: Legal.

Selecting DICOM Viewers

Virtua C allows the recording of multiple DICOM viewers on disc (both general purpose viewers and specialized viewers).

To select the DICOM viewers

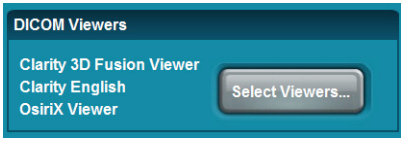
1. On the **Edit Job Options** screen, click the **Select Viewers** button.



2. Viewers can be selected or de-selected on the **Select Viewers** screen. Select the viewers to be included on the disc.

3. When all the desired viewers have been selected, click the **OK** button.

   The selected DICOM viewers are now listed in the **Edit Job Options** screen.



Please note the following issues before selecting multiple DICOM viewers:

- Use of multiple viewers on a disc reduces the available disc storage for recording patient studies.
- The Siemens *syngo*® XS Imaging Viewer and the eFilm Lite™ Viewer may not be recorded together on a disc. Virtua C will prevent the user from inadvertently selecting these two viewers together.
- The Siemens *syngo*® XS Imaging Viewer and the Siemens Media Viewer may not be recorded together on a disc. Virtua C will prevent the user from inadvertently selecting these two viewers together.
- The OsiriX Viewer is intended for the Apple Macintosh platform and runs on Macintosh OS 10.5 or greater. The OsiriX Viewer cannot be used in a Windows® environment. Therefore, if the OsiriX Viewer has been recorded on the disc, it is not included in the list of viewers in the viewer LaunchPad that opens when the disc is loaded in a PC.
- The MIMviewer™ and Siemens *syngo*® XS Imaging Viewer must be able to read each study on a disc. Each viewer reports a problem if any study on a disc is not compatible. This issue is independent of the number of viewers on a disc.
- Custom viewers can also be recorded on the disc with the Virtua C standard viewers. However, compatibility should be tested with desired viewers. Refer to the Codonics Virtua 3rd Party Viewer Technical Brief for instructions on use and proper packaging of custom viewers.
- Discs created with more than one DICOM viewer will not list the viewer names on the label. Labels list the number of viewers (for example, Viewer: 2 DICOM Viewers).

Selecting a DICOM Viewer to View Images on a Disc

When a disc with multiple viewers is used in Windows, the LaunchPad screen displays.

This screen includes a drop-down menu that lists the available viewers. Select the desired viewer, then click the **DICOM Studies** button to launch the viewer.

NOTE: *If the* ***DICOM Studies*** *button is clicked without selecting a viewer, the first viewer in the list will be launched.*

Direct to Disc

The Direct to Disc™ is an optional feature that provides an alternate method of recording medical studies to disc. The Direct to Disc function uses a standard Windows file copy instead of DICOM Store. It provides full control over disc content and labeling by allowing any set of files to be copied to Virtua C along with a control file that specifies parameters such as media type, disc label, number of copies, and so on.

The Direct to Disc interface uses a *hot folder* to facilitate communication between host systems and Virtua C. A hot folder is a shared network folder on Virtua C that is mountable by host systems. Virtua C monitors the contents of the hot folder looking for subfolders and control files sent by host systems. Each subfolder is processed as a separate job by Virtua C.

To submit a job, a host system copies a subfolder containing a set of files to the hot folder. The host system can also copy an optional control file that overrides the default job settings assigned to the hot folder. When a subfolder is received by Virtua C, the contents of the subfolder are recorded to disc and a label is printed on the disc. If a control file is included, settings such as media type, disc label, and number of copies can be tailored for that job.

For information about how to set up Direct to Disc and send jobs, contact your Codonics representative.

6 Working with Studies

How Studies Are Stored and Removed

Codonics Virtua C automatically manages studies stored on the hard drive and removes the oldest studies that have been successfully recorded to disc to make space for new studies.

When space is needed for new incoming studies, the oldest study that has been recorded to disc is deleted from the hard drive.

If a study has not been recorded, it will remain tagged as a “new” study in the Studies list until it is recorded. It will not be automatically removed regardless of how old it is.

If the hard drive fills up with “new” studies that have not been recorded to disc, and no space remains for any more incoming studies, then no more studies will be accepted. This can be remedied only by recording some studies to disc, which will allow them to be automatically removed, or by manually deleting unrecorded studies from the Studies list.

Additionally, the system can be configured to automatically delete recorded studies that are older than a preset number of days. For information about setting this parameter, refer to “Setting Up the System Profile” on page 3-26.

Working with the Studies List

Filtering, Sorting, and Scrolling Through the Studies List

The following illustration shows how to filter, sort, and scroll through the Studies list.

Use these buttons to filter the studies that will be listed:

New	Only new, unrecorded studies.
Today	Only studies received today.
Yesterday	Only studies received yesterday.
All	All studies.

Click a column heading to sort the list by that column

Click again to reverse the sort order

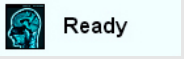
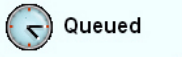
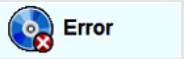
Scroll one page at a time

Scroll to beginning or end of list

Study Status Indicators

The Status column displays icons to indicate the current status of each study.

Table 6-1. Study Status Indicators

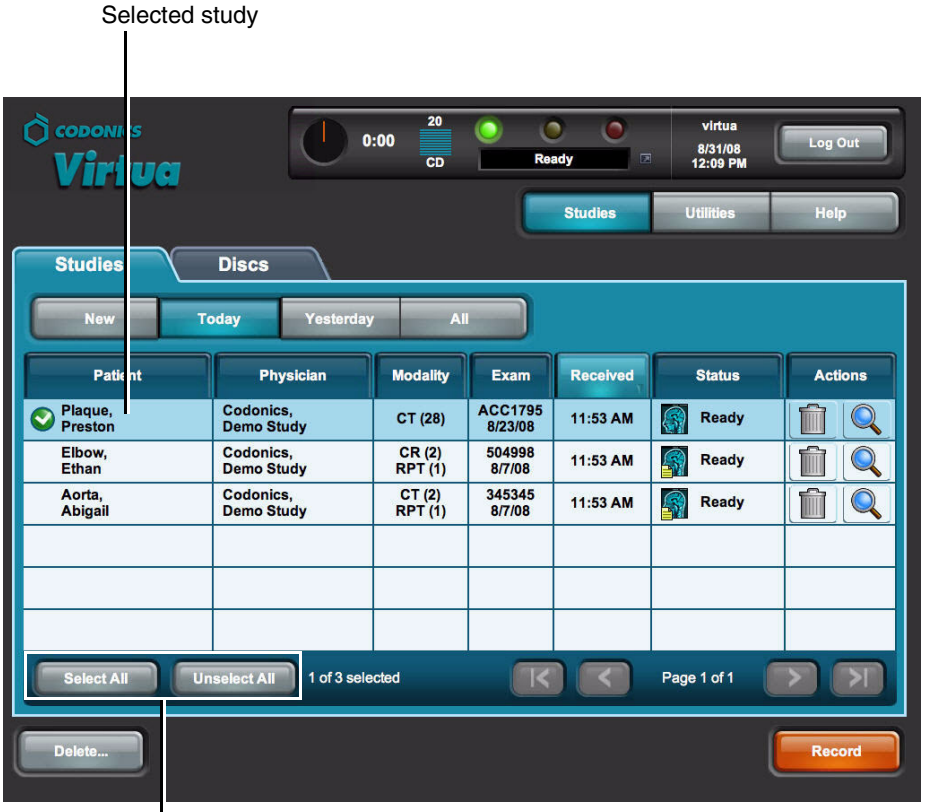
Status Icon	Description
	The study is currently being received from the sending host.
	The study has been received and is ready to be recorded.
	The study has been queued for recording.
	The study is being recorded, or the disc on which it has been recorded is being labeled.
	The study has been recorded and the disc has been placed in the device's output bin.
	The study was not successfully recorded to disc.
	The yellow page icon at the lower left corner of a status icon indicates that the study includes a report.

CAUTION Discs that fail to record properly are either labeled with a Reject icon (shown below) or not labeled at all. These discs should be destroyed to protect the confidentiality of patient data.

Selecting Studies

Click a study to select it. Each selected study is indicated by a check mark and is highlighted.

To unselect a study, simply click it again.



Displaying Study Details

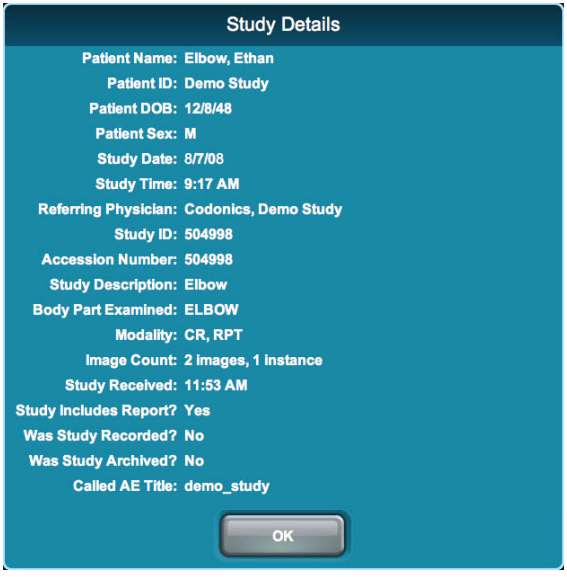
The Studies list displays general information about the study — patient name, physician, study type, and so on.

You can also display more detailed information about a study.

To display study details

Click the Details icon for the study.

The **Study Details** window displays.



Deleting Studies Manually

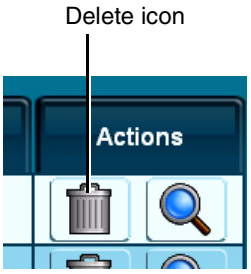
To delete multiple studies

Select the studies that you want to delete, then click the **Delete** button.

You are prompted to confirm the deletion.

To delete an individual study

Click the Delete icon for the study.



You are prompted to confirm the deletion.

7 Working with Jobs

All jobs that have been sent for recording are listed in the Discs queue on the **Discs** tab.

From this list, you can:

- Filter, scroll through, and sort the list of jobs
- Check the status of a job
- Display detailed information about a job
- Delete a job

These tasks are covered in the topics in this chapter.

Working with the Discs Queue

The following illustration shows how to filter, sort, and scroll through the Discs queue on the **Discs** tab.

Use these buttons to filter the jobs that will be listed:

Queued	Pending or in-progress jobs.
Recorded	Recorded jobs.
All	All jobs.

Click a column heading to sort the list by that column

Click again to reverse the sort order

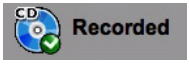
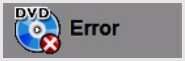
Scroll one page at a time

Scroll to beginning or end of list

Job Status Indicators

The Status column displays icons to indicate the current status of each job.

Table 7-1. Job Status Indicators

Status Icon	Description
	The job has been queued for recording. The media type — CD or DVD — is indicated in the icon.
	The job is being recorded, or the disc on which it has been recorded is being printed.
	The job has been recorded and the disc has been placed in the device's output bin.
	The job failed to complete successfully.

CAUTION Discs that fail to record properly are either labeled with a Reject icon (shown below) or not labeled at all. These discs should be destroyed to protect the confidentiality of patient data.

Displaying Detailed Job Information

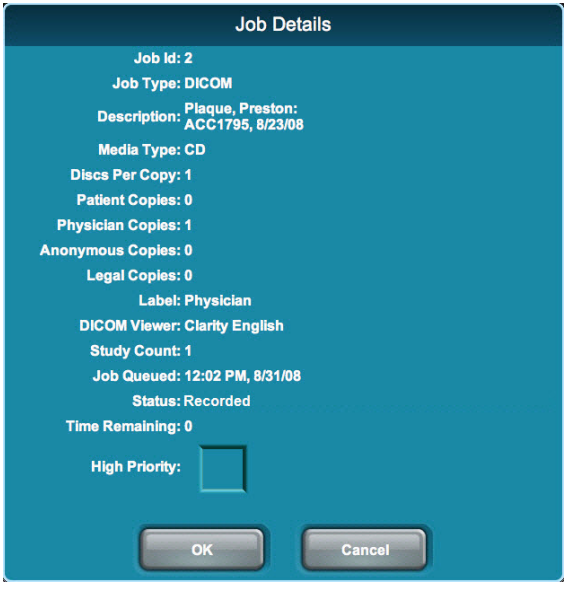
Each column of a job entry includes general information about the job — a description, its job ID, its completion status, and so on.

You can also display more detailed information about a job.

To display job details

Click the Details icon for the job.

The **Job Details** window displays.



Deleting a Job Manually

To delete a job

Click the Delete icon for the job.

You are prompted to confirm the deletion.

CAUTION Deleting a job that is in-progress can result in a disc that is either labeled with a Reject icon (shown below) or not labeled at all. These discs should be destroyed to protect the confidentiality of patient data.

8

Working with Labels

Virtua C supports preinstalled and site-specific customized disc labels, on which site and study information is printed. Job Profiles specify which label to use for a recording job. For jobs that are manually submitted for recording, the label specified in the Job Profile can be overridden using the Job Options function.

This chapter explains:

- Disc label design families and how they are used by the automatic label selection feature
- How to add a customized label

Disc Label Design Families

A label design family represents the general layout and graphical pattern of a printed label. It is implemented by one or more template files, each of which has a different amount of printable space for study information.

The purpose of label design families is to maximize the amount of graphical content on the label used for promotional purposes. As the number of studies recorded on a disc increases, Virtua C can automatically choose a label in the same design family that allows more studies to be listed on the label. This is usually done by creating a label that removes some promotional graphics to make room for more studies to be printed on the label.

To support this feature, the template files in a label design family must have the same root name, followed by ***-(x)***, where ***x*** is the number of studies that will fit. For example, the Physician family of labels includes **Physician-(3).std** and **Physician-(5).std**.

Preinstalled Label Design Families

The following standard disc label design families are preinstalled on the SmartDrive:

- Blonde_Boy, Blonde_Boy_Wide
- Ink_Saver, Ink_Saver_Wide
- Physician, Physician_Wide
- Phys_Steth, Phys_Steth_Wide
- Stethoscope, Stethoscope_Wide
- Senior_Couple, Senior_Couple_Wide
- Surgical_Mask, Surgical_Mask_Wide

The wide version of each standard label family supports wide character sets (for example, Asian character sets).

To support the automatic label selection feature, there is a 3-study and 5-study template in each label design family. In addition, there is a 10-study version of the Ink_Saver label.

Forcing Disc Spanning Based on Label Space

Setting the doLimitStudiesPerDiscToLabelCapacity parameter in a Job Profile file to True forces the job to span studies to additional discs if there are more studies than can fit on the label. For information about creating and modifying Job Profile files, refer to "Setting Up Job Profiles" on page 3-35.

If this parameter is set to False and the label cannot fit the information about all of the job's studies, the **ReadMe.txt** file on the disc will list the studies not included on the label.

Label Selection Based on Copy Type

Virtua C supports specifying different labels based on the disc copy type — physician, patient, anonymous, or legal. This allows a site to use the Ink Saver label for in-house physicians but a more attractive label for patients.

For information about specifying the labels for the various copy types, refer to the discLabelCopy parameter descriptions in Table 3-7 on page 3-37.

Adding a Custom Disc Label

A custom label can be added for printing on any disc. Typically, custom labels contain special color schemes, the name of the imaging center, a picture of the facility, or the corporate logo.

The label must be designed using the Sure Thing label design application. The Sure Thing label design application is a Windows-based application that is provided on the Accessories and Manuals disc provided with Virtua C.

NOTE: *It is strongly recommended to always use the version of the Sure Thing label design application that shipped with the latest Accessories and Manuals disc to ensure that the label designs are compatible with the current Virtua C software release. Some labels created with older versions of the Sure Thing label design application will not work properly with new versions of Virtua C software.*

Once the label has been designed, its file can be copied to the SmartDrive to make it available to the device.

NOTE: *The automatic label selection feature uses the sequence* ***-(MaxStudies****) in file names to recognize which labels are available in a family of labels. Therefore, do not use this sequence in a custom label file name unless you are creating a family of labels for use with the automatic label selection feature.*

NOTE: *For custom label designs that support more or fewer than 3 studies, the -(*maxStudies*) needs to be used to indicate the number of studies supported. It defaults to 3, so for a 3-study label, while it is not required, it is recommended that -(3) be included.*

To make a custom label file available to the device

1. Verify that no jobs are currently being processed and no studies are being received.
2. Log out and shut down the system (refer to “Logging Out” on page 3-56 and “Shutting Down and Rebooting” on page 3-56).

   The device powers off at the end of the shutdown process.

NOTE: *If you do not shut down the system before removing the SmartDrive, a message displays indicating that the SmartDrive has been removed. Once it is reinserted, the system prompts you to reboot.*

3. Remove the SmartDrive, which is inserted in the USB port behind the green output bin.
4. Mount the SmartDrive in a USB port on a PC.

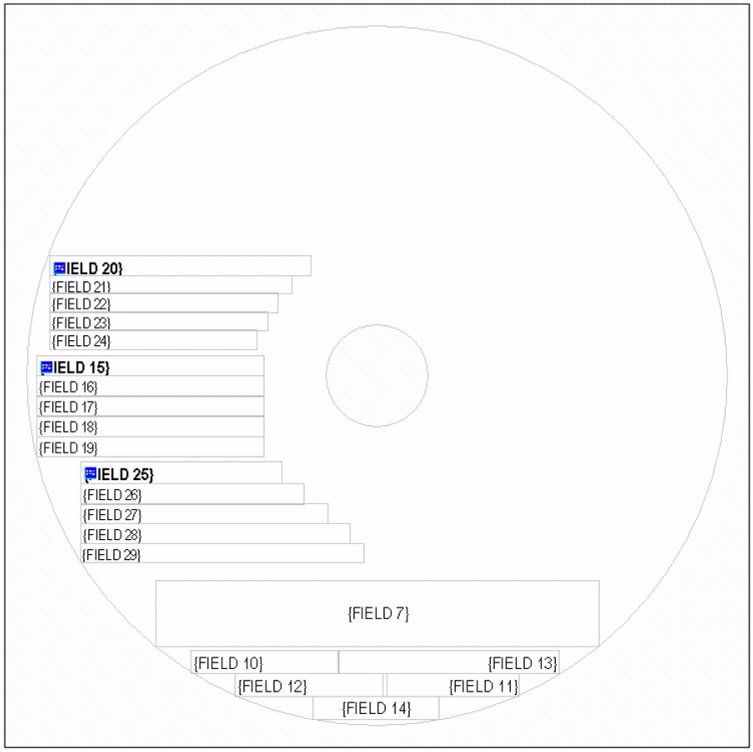
   The SmartDrive will appear as a standard USB flash drive.
5. Copy the ***labelname*.std** file (created using the Sure Thing application) to the **\labels** folder on the SmartDrive.
6. Unmount the SmartDrive from the PC, then insert it back into the device.
7. Reinstall the output bin.
8. Power on the device by pressing the System power button on the Controller front panel.

The label is now ready to use. You can specify this label in the site's Job Profiles. Also, users can select this label from the Job Options screen. For more information, refer to "Setting Up Job Profiles" on page 3-35 and "Job Options" on page 5-12.

Study Fields Included on Labels

The printed labels have study blocks reserved for printing study information. Each study block of the standard labels that are provided with Virtua C has either three or four fields available for information, depending on the template. Custom labels can include up to five fields.

The following sample custom label template (showing the merge fields only) includes three study blocks, with each having five fields available for information.



For standard labels, the following rules determine how many fields each study will have on the disc label:

- If the label is for discs that will have three studies or less, four study information fields can be included.
- If the label is for discs that will have four to ten studies, three fields can be included.

The file **fields.default.txt** in the **\labels** folder on the SmartDrive controls what information will be printed for each field in a study. This file has section identifiers for 3- and 4-field study blocks. The field ordering under the [3FieldStudies] header corresponds to labels that support 4 to 10 studies, and the field ordering under the [4FieldStudies] header corresponds to labels that support 1-3 studies.

You can specify which fields to include for each of these block sizes and in what order they appear.

To include a field, enter an integer value for that field. The integer value indicates at which line in the study block that the field's information will be inserted. A value of **0** indicates that the information will not be included in the label.

NOTE: *The label template must have fields available for information to be put in them. For example, if the label template only has 3 fields per block, and the fields.default.txt has fields ordered from 1 to 5, only the first 3 will appear on the printed label.*

The default content of the **fields.default.txt** file is:

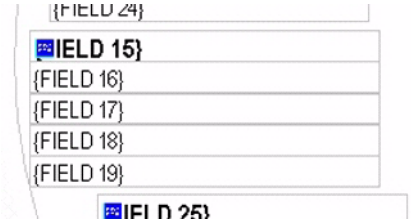
```
[3FieldStudies]
patientName=1
patientID=0
studyDate_Modality=2
studyDescription=3
studyID=0
referringPhysician=0
patientDOB=0
accessionNumber=0
accessionNumberNoPrefix=0
[4FieldStudies]
patientName=1
patientID=2
studyDate_Modality=3
studyID=0
studyDescription=4
referringPhysician=0
patientDOB=0
accessionNumber=0
accessionNumberNoPrefix=0
```

So, by default, the following information will be printed on the label in the order shown for 4-field study blocks:

Patient name
Patient ID
Study date and modality
Study description

Referring to the sample label template shown earlier, this information would be merged into the first study block information fields as follows:

Patient name to field 15.
Patient ID to field 16.
Study date and modality to field 17.
Study description to field 18.



Note the following about fields listed in the **fields.default.txt** file:

- If a field integer value is blank (unassigned) or assigned a value that is outside of the maximum number of fields available, the corresponding field information will not be included on the printed label.
- If multiple fields are assigned the same valid line number, the first field that specifies the line number will be used and subsequent fields assigned that number will be ignored.

The following table shows how the site and study information is mapped to the fields of the label templates.

Table 8-1. Label Field Information Mappings

Field Number	Field contents	Field Number	Field contents
1	Site Name	38	Study Block 5, Field 4
2	Site Address 1	39	Study Block 5, Field 5
3	Site Address 2	40	Study Block 6, Field 1
4	Site Address 3	41	Study Block 6, Field 2
5	Site Telephone	42	Study Block 6, Field 3
6	Site URL	43	Study Block 6, Field 4
7	Site Disclaimer	44	Study Block 6, Field 5
8	<Reserved>	45	Study Block 7, Field 1
9	<Reserved>	46	Study Block 7, Field 2
10	Disc ID	47	Study Block 7, Field 3
11	Copy Type	48	Study Block 7, Field 4
12	Date Recorded	49	Study Block 7, Field 5
13	Dicom Viewer(s)	50	Study Block 8, Field 1
14	Media Type X of X	51	Study Block 8, Field 2
15	Study Block 1, Field 1	52	Study Block 8, Field 3
16	Study Block 1, Field 2	53	Study Block 8, Field 4

Table 8-1. Label Field Information Mappings

Field Number	Field contents	Field Number	Field contents
17	Study Block 1, Field 3	54	Study Block 8, Field 5
18	Study Block 1, Field 4	55	Study Block 9, Field 1
19	Study Block 1, Field 5	56	Study Block 9, Field 2
20	Study Block 2, Field 1	57	Study Block 9, Field 3
21	Study Block 2, Field 2	58	Study Block 9, Field 4
22	Study Block 2, Field 3	59	Study Block 9, Field 5
23	Study Block 2, Field 4	60	Study Block 10, Field 1
24	Study Block 2, Field 5	61	Study Block 10, Field 2
25	Study Block 3, Field 1	62	Study Block 10, Field 3
26	Study Block 3, Field 2	63	Study Block 10, Field 4
27	Study Block 3, Field 3	64	Study Block 10, Field 5
28	Study Block 3, Field 4	65	Study Block 1 Report
29	Study Block 3, Field 5	66	Study Block 2 Report
30	Study Block 4, Field 1	67	Study Block 3 Report
31	Study Block 4, Field 2	68	Study Block 4 Report
32	Study Block 4, Field 3	69	Study Block 5 Report
33	Study Block 4, Field 4	70	Study Block 6 Report
34	Study Block 4, Field 5	71	Study Block 7 Report
35	Study Block 5, Field 1	72	Study Block 8 Report
36	Study Block 5, Field 2	73	Study Block 9 Report
37	Study Block 5, Field 3	74	Study Block 10 Report

9 Working with Locales

Locale-Related Features

The locale setting is used to specify regional information displayed by the system, including language, date and time format, the DICOM image viewer, and some patient demographic information. Codonics Virtua C includes several features to support different locales.

User Interface

The user interface — including labels, button text, dialog messages, column headings, and warning messages — is in English by default, but the following languages are also supported at the time of publication:

- Chinese (PRC)
- French (France)
- German (Germany)
- Italian
- Japanese
- Portuguese
- Spanish (Spain)
- Turkish

For these languages, there are a few exceptions (Job Profile names, label templates, and disc features) that remain in English.

For other languages, the local language is supported for site information and DICOM demographic information.

The following locale-related features are also supported:

- Each of the standard disc labels that are provided with Virtua C has a wide version of the label to accommodate wide Eastern Asian characters.
- For Japan, the default setting for column 2 of the Studies list is the Patient ID instead of the Referring Physician.
- For Japan, a Japanese DICOM viewer is included. This viewer is the same as the Clarity Viewer, but localized for Japan.
- Standard disc labels using different fonts are available on the Accessories Disc for languages such as Arabic, Hebrew, Thai, and Korean characters.

Reports

Latin-1 and other ISO-8859-based character sets are supported by Virtua C DICOM Structured Reports and HL7 Reports.

DICOM conformant character sets are supported for DICOM Structured Reports.

Tier 1 and Tier 2 Regions

For locales, languages in Tier 1 regions are fully supported. Languages in Tier 2 regions are configured in the device but are not not fully verified and supported.

Table 9-1 lists the Tier 1 and Tier 2 locales.

The locale for the device is set in the Locale Profile. For more information, refer to “Setting Up the Locale Profile” on page 9-8.

You should set Virtua C to your locale for the best compatibility with various images likely to be received from systems in the locale. Some systems do not indicate the language used for their messages. If you set the device to your locale, it is more likely that the system messages and images will be readable.

Table 9-1. Locales — Tier 1 and Tier 2

Locale	Locale Profile Configuration Code	Tier 1	Tier 2
Arabic - Egypt	ar_EG		●
Arabic - Iraq	ar_IQ		●
Arabic - Jordan	ar_JO		●
Arabic - Kuwait	ar_KW		●
Arabic - Lebanon	ar_LB		●
Arabic - Saudi Arabia	ar_SA		●
Arabic - Syria	ar_SY		●
Arabic - U.A.E.	ar_AE		●
Chinese - Hong Kong SAR	zh_HK		●
Chinese - PRC	zh_CN	●	
Chinese - Singapore	zh_SG		●
Chinese - Taiwan	zh_TW		●
Danish - Denmark	da_DK	●	
Dutch - Belgium	nl_BE		●
Dutch - Netherlands	nl_NL		●
English - Australia	en_AU		●
English - Canada	en_CA		●
English - New Zealand	en_NZ		●

Table 9-1. Locales — Tier 1 and Tier 2 (Continued)

Locale	Locale Profile Configuration Code	Tier 1	Tier 2
English - South Africa	en_ZA		●
English - United Kingdom	en_GB	●	
English - United States	en_US	●	
Finnish - Finland	fi_FI	●	
French - Belgium	fr_BE		●
French - Canada	fr_CA	●	
French - France	fr_FR	●	
French - Luxembourg	fr_LU		●
French - Switzerland	fr_CH		●
German - Austria	de_AT		●
German - Germany	de_DE	●	
German - Luxembourg	de_LU		●
German - Switzerland	de_CH		●
Greek - Greece	el_GR		●
Hebrew - Israel	iw_IL		●
Hungarian - Hungary	hu_HU		●
Italian - Italy	it_IT	●	
Italian - Switzerland	it_CH		●
Japanese - Japan	ja_JP	●	
Korean (Extended Wansung) - Korea	ko_KR		●
Latvian - Latvia	lv_LV		●

Table 9-1. Locales — Tier 1 and Tier 2 (Continued)

Locale	Locale Profile Configuration Code	Tier 1	Tier 2
Lithuanian - Lithuania	lt_LT		●
Malay - Brunei Darussalam	ms_BN		●
Norwegian - Norway (Bokmål)	no_NO	●	
Polish - Poland	pl_PL		●
Portuguese - Brazil	pt_BR	●	
Portuguese - Portugal	pt_PT	●	
Romanian - Romania	ro_RO		●
Russian - Russia	ru_RU		●
Serbian - Serbia (Cyrillic)	sr_CS1		●
Serbian - Serbia (Latin)	sr_CS2		●
Spanish - Argentina	es_AR		●
Spanish - Chile	es_CL		●
Spanish - Colombia	es_CO		●
Spanish - Dominican Republic	es_DO		●
Spanish - Mexico	es_MX	●	
Spanish - Peru	es_PE		●
Spanish - Puerto Rico	es_PR	●	
Spanish - Spain (International Sort)	es_ES	●	
Spanish - Venezuela	es_VE		●
Swedish - Finland	sv_FI		●
Swedish - Sweden	sv_SE	●	

Table 9-1. Locales — Tier 1 and Tier 2 (Continued)

Locale	Locale Profile Configuration Code	Tier 1	Tier 2
Tamil - India	ta_IN		●
Thai - Thailand	th_TH		●
Turkish - Turkey	tr_TR	●	
Vietnamese - Viet Nam	vi_VN		●

DICOM Character Sets Supported by Virtua C

Virtua C supports the following DICOM Standard character sets. For more information, refer to the Virtua C DICOM Conformance Statement.

Table 9-2. DICOM Character Sets Supported by Virtua C

DICOM-Defined Term	Common Name	Description
ISO_IR 6	US-ASCII	7-bit characters (Default)
ISO_IR 100	ISO 8859-1	Latin Alphabet No. 1, Western European
ISO_IR 101	ISO 8859-2	Latin Alphabet No. 2, Eastern European
ISO_IR 109	ISO 8859-3	Latin Alphabet No. 3
ISO_IR 110	ISO 8859-4	Latin Alphabet No. 4
ISO_IR 144	ISO 8859-5	Latin/Cyrillic Alphabet
ISO_IR 127	ISO 8859-6	Latin/Arabic Alphabet
ISO_IR 126	ISO 8859-7	Latin/Greek Alphabet
ISO_IR 138	ISO 8859-8	Latin/Hebrew Alphabet
ISO_IR 148	ISO 8859-9	Latin Alphabet No. 5
ISO_IR 13	JIS X 0201-1976	Katakana Alphabet
ISO_IR 166	TIS 620 (1990)	Thai Alphabet
ISO_IR 14	JIS X 0201-1976	Romaji Alphabet (Japanese ASCII)
ISO_IR 87	JIS X 0208-1990	Kanji Alphabet
ISO_IR 159	JIX X 0212-1990	Supplementary Kanji Alphabet
ISO_IR 149	KS X 1001-1997	Hangul and Hanja Alphabets (Korean)
ISO_IR 192	ISO 10646	Unicode in UTF-8
GB18030	GB18030	Simplified Chinese, PRC standard

This DICOM character encoding support allows patient and study data to display properly.

NOTE: *Virtua C properly displays international characters for well-formed DICOM images that include the Specific Character Set tag. Virtua C can accommodate DICOM images that do not include this tag, or have it incorrectly set to Latin 1, by using the proper locale.*

Setting Up the Locale Profile

The Locale Profile includes configuration parameters that define locale-specific display elements and functions.

The Locale Profile file — **locale.default.txt** — is preinstalled on the SmartDrive in the **\profiles\locale** folder. You can modify this file to specify locale configuration information. For general information about modifying a profile, refer to "Creating and Modifying Profiles" on page 3-6.

The format and parameters of the Locale Profile text file are defined in the following table.

Table 9-3. Locale Profile Format and Parameters

Parameter Name	Description
[LocaleProfile]	Section identifier. This parameter must occur before all other parameters in the file. *NOTE: Do not change this identifier.*
doAdjustForDaylightSavingsTime =	Not currently implemented.
twelveTwentyfourDisplay =	Specifies whether to use a 12- or 24-hour time format. Currently supported only for Japanese. Other languages default to a 12-hour format. Choices are: **12**, **24**.
timezone =	Not currently implemented.

Table 9-3. Locale Profile Format and Parameters (Continued)

Parameter Name	Description
personNameFormat =	Defines the complete format of a patient's name as displayed on the user interface. Given a DICOM person name of the form: nameA=nameB=nameC Valid entries are: **1**: use nameA **2**: use nameB **4**: use nameC **3**: use nameA and nameB **5**: use nameA and nameC **6**: use nameB and nameC Because there is room in the user interface for only two names, when personNameFormat = **7** or **0** (the default), the first two names that are defined are displayed.
column2 =	Defines what information is displayed in the second column of the Studies list. Choices are: • phys (the default): for Physician • patID: for Patient ID
locale =	Specifies the locale to be used in the device. Choices are listed in the second column of Table 9-1 on page 9-3. The default is en_US.

Table 9-3. Locale Profile Format and Parameters (Continued)

Parameter Name	Description
overrideForIR100 =	Specifies whether to use an overriding character set. This parameter allows a site to use "Western" equipment but input non-Latin 1 data to properly display Patient Names on the Virtua C user interface and on printed disc labels. An example is the support of patient names on various systems in China, which utilize a non-conformant DICOM behavior. Virtua C can be set to ignore the specific character set tag when displaying Patient Name and other attributes and rely only on the locale defined for Virtua C to display the name. Choices are: • None (the default). No override is performed, and Latin 1 text is interpreted with the Latin 1 character set. • localeDefault. The overriding character set will be defined by the current Virtua C locale. • *Character_Set_Name*. A DICOM-defined character set name, such as IR 144 (Cyrillic), or IR 13 (Japanese). Refer to Table 9-2 on page 9-7 for a full list of allowable character sets.

A typical Locale Profile would look like the following:

```
[ LocaleProfile ]
localeProfileName = default
doAdjustForDaylightSavingsTime = true
twelveTwentyfourDisplay = 24
timezone = EST
personNameFormat = 0
column2 = phys
locale = en_US
overrideForIR100 = None
```

10 Patient Reports

Reports-Related Features

Reports is an optional feature that allows Virtua C to receive patient reports with a patient's study and record both to disc. Both the DICOM Structured Report and Health Level 7 (HL7) Report formats are supported.

NOTE: *A feature key is required for the Reports feature. Contact Codonics Technical Support or your Sales Representative to purchase the proper feature key.*

- A report and study together can be recorded only on "Physician Disc" copies. All other copy types will record only the study to disc and omit the report.
- A LaunchPad on recorded discs allows a user to choose viewing the study or the report from the study disc. Reports are viewable via a web browser.
- A yellow page icon is used to designate a report. For those studies that have a matching report, this icon appears in the lower left corner of the existing status icons (e.g., Ready, Recorded, etc.). In certain cases, if a study has a report that is not recorded to the disc, the status will show a flashing yellow page icon.

- Study discs that contain a matching report and study have a yellow page icon on the disc label, indicating that there is a report attached to the study.
- If there is more than one study and only one report, the report will be attached to the appropriate study. If the report references both studies, it will only be attached to one of the studies.
- DICOM reports are automatically deleted from Virtua C when the associated study is deleted. HL7 reports are deleted based on parameters set in the HL7 Server Profile.
- Latin-1 and many other international character sets are supported in the DICOM Structured Reports and HL7 Reports created when studies are recorded.

Two Methods for Receiving DICOM Structured Reports

Virtua C supports two methods for receiving DICOM Structured Reports: receive reports stored on a PACS or query for reports stored on a DICOM broker (PACS broker or MITRA broker).

How Virtua C Processes Reports

Patient Reports are generated when a radiologist reads a study and enters the results into a computer system. Patient reports are initially stored on a Radiology Information System (RIS), but they can also be stored on a PACS system or accessed through a DICOM Broker system. These reports can be sent to the Virtua C in either a DICOM Structured Report format or an HL7 Report format.

A facility will typically need to enable only one interface for reports on the Virtua C, either the DICOM Structured Report interface or the HL7 interface. It is important to understand the patient report workflow at a facility before attempting to configure Virtua C.

To combine a radiology report with a diagnostic study, Virtua C accepts HL7 reports from the RIS and DICOM studies from the PACS. Once Virtua C receives both the report and study, it will match them together and record both on a disc.

When Virtua C receives a report, it converts the data found inside the report to an internal format that is used to present the report in a viewable format on the disc. The final format of the report can be customized by making changes to the report template.

The final format of the report is controlled by the report template file, **template.default.xsl**, located in the Report Profile **\profiles\report** folder on the SmartDrive. This file is in a format similar to HTML and can be edited by an experienced user to create a layout tailored to a specific facility.

The report logo that is placed on the patient report is the image named **logo.jpg** in the **\profiles\report\images** folder on the SmartDrive. This file can be replaced with another image to create a custom report logo for each site.

Working with DICOM Structured Reports

DICOM Structured Report is a format of patient reports that is defined in the DICOM standard. DICOM Structured Reports provide for excellent workflow within a facility, especially when they are stored on the PACS. When a study is sent from the PACS, the DICOM Structured Report will be sent with the study.

Most PACS systems support the use of DICOM Structured Reports, but the option is not always enabled or in use. Facilities that do not, or cannot, store the reports on the PACS may use a DICOM broker (PACS broker or MITRA broker) to provide Structured Reports to the DICOM systems on the network. Sometimes the broker is built into the RIS or the PACS, or is called a connectivity manager.

NOTE: *Virtua C supports DICOM Basic Text Structured Reports only. Currently, Virtua C will not process other DICOM report types.*

Working with HL7 Reports

Health Level 7 is a standards organization that defines a messaging standard called HL7 used for most system communications within a hospital. HL7 is used to communicate messages in a wide variety of data ranging from patient billing to radiology reports. Radiology reports usually reside on the RIS and are sent using HL7.

Virtua C can accept HL7 reports only from a single RIS.

Virtua C matches an HL7 report to a study as follows:

1. Virtua C matches the patient information in the HL7 report to the patient information in the DICOM study. The information used for matching is controlled by the matchPatientUsing parameter in the HL7 Server Profile.
2. If the patient information matches, then the doMatchAccessionNumber and doMatchExamDate fields in the HL7 Server Profile are used to match a specific report to a study.

Setting Up DICOM Query/Retrieve

Setting Up the QRSCP Profile

The DICOM Query/Retrieve Service Class Provider (QRSCP) Profile includes configuration parameters that must be set up to support the Reports function. It allows Virtua C to query a DICOM QRSCP device, such as a PACS server, for a list of reports. One or more of the reports can then be retrieved and recorded to disc.

The QRSCP Profile file — **qrscp.default.txt** — is preinstalled on the SmartDrive in the **\profiles\dicom** folder. You can modify this file to specify query/retrieve configuration information. For general information about modifying a profile, refer to “Creating and Modifying Profiles” on page 3-6.

The format and parameters of the QRSCP Profile text file are defined in the following table.

Table 10-1. QRSCP Profile Format and Parameters

Parameter	Description
`[ QueryRetrieveScpProfile ]`	Section identifier. This parameter must occur before all other parameters in the file. *NOTE: Do not change this identifier.*
`scp_ae_title =`	The Called AE Title for the Q/R server.
`scp_ip_address =`	The Q/R server IP address.
`scp_port =`	The port number of the Q/R client on Virtua C.
`query_timeout_seconds =`	The number of seconds Virtua C will wait for query results before aborting the request. The default is 3600 (1 hour).
`move_timeout_seconds =`	Not used by the Reports function.
`max_returned_results =`	The maximum number of matching studies that will be accepted by Virtua C in response to a query. The default is 100.
`request_relational_retrieve =`	Not used by the Reports function.
`num_associations_per_retrieve =`	Not used by the Reports function.
`new_association_for_each_retrieve =`	Not used by the Reports function.
`treat_retrieve_warning_as_error =`	Not used by the Reports function.

Following is an example QRSCP Profile:

```
[ QueryRetrieveScpProfile ]
scp_ae_title = ACPAXCMACH
scp_ip_address = 10.123.46.154
scp_port = 3320
query_timeout_seconds = 3600
move_timeout_seconds = 3600
max_returned_results = 100
request_relational_retrieve = false
num_associations_per_retrieve = 3
new_association_for_each_retrieve = false
treat_retrieve_warning_as_error = true
```

Setting Up the QRSCU Profile

The DICOM Query/Retrieve Service Class User (QRSCU) Profile includes configuration parameters that must be set up to support the Reports function. It allows Virtua C to query a DICOM Query/Retrieve Service Class Provider device, such as a PACS server, for a list of reports. One or more of the reports can then be retrieved and recorded to disc.

The QRSCU Profile file — **qrscu.default.txt** — is preinstalled on the SmartDrive in the **\profiles\dicom** folder. You can modify this file to specify query/retrieve configuration information. For general information about modifying a profile, refer to "Creating and Modifying Profiles" on page 3-6.

The format and parameters of the QRSCU Profile text file are defined in the following table.

Table 10-2. QRSCU Profile Format and Parameters

Parameter	Description
`[ QueryRetrieveScuProfile ]`	Section identifier. This parameter must occur before all other parameters in the file. *NOTE: Do not change this identifier.*
`qrscp_profile =`	The name of the Virtua C QRSCP Profile to use when performing a query. The default is **default** (i.e., **qrscp.default.txt**).

Table 10-2. QRSCU Profile Format and Parameters (Continued)

Parameter	Description
`calling_ae_title =`	The Calling AE Title for Virtua C. The default in the default QRSCU Profile (**qrscp.default.txt**) is VIRTUA_QR_SCU. Most Q/R SCP devices will allow any Calling AE device to initiate queries, but not necessarily to initiate retrieves. It is recommended that the Calling AE Title be the same as the Destination AE Title.
`destination_ae_title =`	The Destination AE Title for Virtua C. This is the AE Title name that will be used to designate the Job Profile for studies that are retrieved. This AE Title must be configured in the DICOM Q/R SCP device as a valid Store destination. It is recommended that the Destination AE Title be the same as the Calling AE Title.
`information_model =`	The DICOM information model. Choices are: STUDY ROOT (the default), MITRA, or MITRA S.
`specific_character_set =`	The Specific Character set to use when querying on Patient Name. Choices are: None (the default), IR 100.
`column_3_display =`	Not used by the Reports function.
`use_patient_dob_range =`	Not used by the Reports function.
`use_study_date_range =`	Not used by the Reports function.

Following is an example QRSCU Profile:

```
[ QueryRetrieveScuProfile ]
qrscp_profile = MITRA
calling_ae_title = VIRTUA
destination_ae_title = VIRTUA
information_model = MITRA
specific_character_set = None
column_3_display = accession_number
use_patient_dob_range = false
use_study_date_range = true
```

Guidelines for Configuring Virtua C on the DICOM Q/R SCP Device

The Query/Retrieve function must be properly configured on both Virtua C and the DICOM Q/R SCP device.

Use the following guidelines:

- Configure Virtua C as a DICOM Storage Service Class Provider (SCP) on the DICOM Q/R SCP device. This allows the DICOM Q/R SCP device to store, or "push," studies to the Virtua C device. For more information, refer to "Configuring a Typical DICOM Host" on page 4-1.
- Make sure that the Called AE Title defined for Virtua C on the DICOM Q/R SCP device is unique, as it will be used for the destination_ae_title in the Retrieve configuration as well.
- Unique Called AE Titles are especially important if there is more than one Virtua C device installed and configured on the network. That is, do not use the factory default Virtua C AE Titles, such as "auto," but instead create a Virtua C device-specific AE Title/Job Profile for the specific Virtua C installation, such as "VIRTUA_AUTO_1."

Following are sample configuration settings for Virtua C in the DICOM Q/R SCP device:

IP Address = 192.168.1.3
Port = 104
AE Title = QR_JOB_PROFILE

Setting Up Patient Reports

Enabling DICOM Structured Reports

Support for DICOM Structured Reports requires a feature key on the Virtua C SmartDrive. Contact Codonics Technical Support or your Sales Representative to purchase the proper feature key.

If reports are being stored on the PACS, then the feature key is all that is necessary to enable the functionality on the Virtua C. However, the PACS may need to be configured to send the reports with the studies.

If reports are accessed through a broker interface, then query profiles need to be set up in the **\profiles\dicom** folder on the SmartDrive. The PACS administrator will need to provide the IP address, query port number, and AE Title of the broker interface. In the QRSCU Profile, the information_model setting must be set to MITRA for most brokers or MITRA S for the Siemens Novius.

Once the QRSCU and QRSCP Profiles have been created, the parameter queryProfileName in the Report Profile should be set to the name of the QRSCU Profile that points to the MITRA broker. Using the default profiles to query the broker is not recommended.

Several customizations are available in the Report Profile, **report.default.txt**, located in the **\profiles\report** folder on the SmartDrive. These are described in "Modifying the Report Profile" below.

Modifying the Report Profile

For general information about modifying a profile, refer to "Creating and Modifying Profiles" on page 3-6.

The Report Profile, **report.default.txt**, is stored in the **\profiles\report** folder on the SmartDrive.

The format and parameters of the Report Profile text file are defined in the following table.

Table 10-3. Report Profile Format and Parameters

Parameter	Description
`[ ReportProfile ]`	Section identifier. This parameter must occur before all other parameters in the file. *NOTE: Do not change this identifier.*
`doIncludeXMLReport =`	If a report has been matched with a study, specifies whether to include the standard Codonics report on the recorded disc. Choices are: True (the default), False.
`doIncludeStructuredReport =`	If a report has been matched with a study, specifies whether to include a DICOM Structured Report on the recorded disc. This setting is effective only if the source report is a DICOM Structured Report. This format can be viewed only by a limited number of DICOM viewers. Choices are: True, False (the default).
`reportTemplateFileName =`	The name of the template file that contains the report layout. The file must be located on the SmartDrive in the **\profiles\report** folder. Default is **template.default.xsl**.
`doKeepOnlyLatestReport =`	Specifies whether or not to keep only the most recently received version of a report, or all of the versions of a report. Choices are: True (the default), False.
`queryProfileName =`	The name of the Query Profile to use when querying a Broker for a report. When set to none, a query will not be performed. Default is none.

Table 10-3. Report Profile Format and Parameters (Continued)

Parameter	Description
`queryReportFields =`	Specifies the fields that will be used to query the Broker interface. This setting should contain the least number of fields necessary to uniquely identify a single patient report. Field designations are: name, id, dob, sex, acc, date, uid. Fields are entered as text strings separated by an underscore character. Default is id_acc.

A sample Report Profile would look like the following:

```
[ ReportProfile ]
doIncludeXMLReport = true
doIncludeStructuredReport = false
reportTemplateFileName = template.default.xsl
doKeepOnlyLatestReport = true
queryProfileName = none
queryReportFields = id_acc
```

Enabling HL7 Reports

Support for HL7 patient reports requires a feature key on the Virtua C SmartDrive. Contact Codonics Technical Support or your Sales Representative to purchase the proper feature key.

In addition, the RIS and the HL7 Server Profile must be configured. Refer to “RIS Configuration for HL7 Reports” on page 10-12 and “HL7 Server Profile Settings” on page 10-12.

RIS Configuration for HL7 Reports

HL7 reports require proper configuration of both the RIS and Virtua C. The RIS vendor or Interface Team must configure the RIS or Interface Engine to send radiology reports to Virtua C. The following information is required:

- The preferred HL7 port number
- The location of the accession number within the HL7 message
- The uniqueness of the accession number

NOTE: *Each RIS system is different. This document relies on the RIS vendor or Interface Team to handle configuration details of their particular RIS.*

HL7 Server Profile Settings

For general information about modifying a profile, refer to "Creating and Modifying Profiles" on page 3-6.

The HL7 Server Profile, **hl7.server.txt**, is stored in the **\profiles\report** folder on the SmartDrive.

The format and parameters of the HL7 Server Profile text file are defined in the following table.

Table 10-4. HL7 Server Profile Format and Parameters

Parameter	Description
`[ HL7Profile ]`	Section identifier. This parameter must occur before all other parameters in the file. *NOTE: Do not change this identifier.*
`doEnableHL7Reports =`	Specifies whether Virtua C will accept and process HL7 reports. Choices are: True, False (the default).
`portNumber =`	Determines the port used for HL7 communications. This should be set to the value provided by the RIS Administrator. Choices are: 1 to 65535. The default is 2575.

Table 10-4. HL7 Server Profile Format and Parameters (Continued)

Parameter	Description
`HL7AccessionSegment =`	Identifies to Virtua C which segment of the HL7 message contains the accession number. This should be set to the value provided by the RIS Administrator. The default is OBR.
`HL7AccessionFieldNumber =`	Identifies which field of the given segment contains the accession number. This should be set to the value provided by the RIS Administrator. Choices are: 1 to 255. The default is 3.
`doMatchAccessionNumber =`	Specifies whether or not Virtua C will use the accession number to match reports with studies. This is the preferred matching method. Choices are: True (the default), False.
`doMatchExamDate =`	Specifies whether or not the software will use the exam date to match reports with studies. Choices are: True, False (the default).
`maxReportAge =`	Used by Virtua C to remove old reports from the system. Reports that are older than the number of days specified will be removed by Virtua C. When set to 0, all reports will be kept until the maxNumberOfReports is reached. Choices are: 0 to 365. The default is 90.
`maxNumberOfReports =`	Defines the maximum number of unmatched reports to store. Unmatched reports are maintained in an first-in, first-out basis. The oldest reports will be deleted after this limit is reached. Choices are: 1 to 120000. The default is 60000.
`doUpdateReceivedTime =`	Specifies whether the received time of the study associated with the received report should be updated to promote the report to the top of the studies list in the **Studies** tab of the user interface. Choices are: True, False (the default).

Table 10-4. HL7 Server Profile Format and Parameters (Continued)

Parameter	Description
`doDisconnectAtEndOfMessageChar =`	HL7 messages end with an end-of-message character. If the RIS holds the connection open after the message is sent, this parameter can be set to True to force Virtua C to close the connection. Choices are: True, False (the default).
`connectionTimeout =`	The number of seconds the Virtua C will keep a connection open while waiting for communication from the RIS. The RIS can open a new connection after this one closes. When set to 0, the connection will be held open until the RIS closes it. Choices are: 0 to 65535. The default is 0.
`matchPatientUsing =`	Specifies the patient demographic data that Virtua C uses to match an incoming DICOM image to a study in the Virtua C database. Choices are: • id_only (the default) • name_id_dob • name_id_sex • name_dob_sex • id_dob_sex For Virtua C to add an incoming image to a study, the patient information in the image must have an exact match with the patient information in the Virtua C database. Each of the choices other than id_only selects three of the following four patient demographics: Patient Name (name), Patient ID (id), Patient Date of Birth (dob), or Patient Sex (sex). This allows sites with systems that produce images with slightly different patient information to collect the images under the same study on Virtua C.

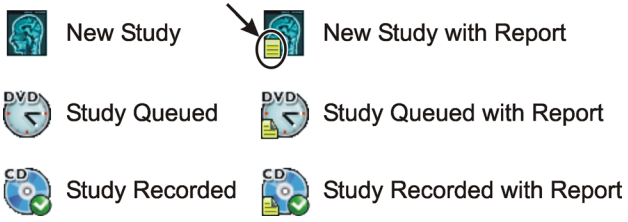
A sample HL7 Server Profile would look like the following:

```
[ HL7Profile ]
doEnableHL7Reports = true
portNumber = 2575
HL7AccessionSegment = OBR
HL7AccessionFieldNumber = 3
doMatchAccessionNumber = true
doMatchExamDate = false
maxReportAge = 90
maxNumberOfReports = 60000
doUpdateReceivedTime = false
doDisconnectAtEndOfMessageChar = false
connectionTimeout = 0
matchPatientUsing = id_only
```

Reports in the User Interface

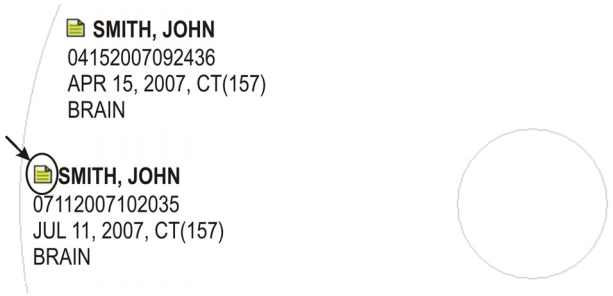
How Reports Are Indicated in the User Interface

The Virtua C user interface indicates when a study includes a report by placing a small, yellow "page" in the bottom-left corner of icons on the **Status** column of the **Studies and Discs** tabs:



How Reports Are Indicated on a Disc Label

On a disc label, a small, yellow "page" icon is placed in front of the text that describes the study to indicate that a report is included with the study:



NOTE: *If the yellow "page" icon is on the study or job status indicator in the user interface but is not printed on the label, contact Codonics Technical Support.*

Viewing Reports on a Recorded Disc

Discs produced by Virtua C include a LaunchPad that allows reports to be viewed in a web browser. When a disc is placed in a PC that includes a report, the LaunchPad starts automatically and provides a menu for selecting the report or study images. When the report is selected and the **Reports** button is clicked, a web browser is launched and the report is displayed as an HTML web page.

11 Scheduled Archive

Scheduled Archive is an optional feature that provides a method of creating a set of discs that contain all studies received by Virtua C. This provides an economical way to store studies for future referral or importing into PACS systems. Discs are automatically recorded to ensure all new studies are added to the archive. All discs are in DICOM format for easy viewing of studies or transfer to PACS. A viewer is provided to view the images. An index is included on each disc that identifies all studies on that disc and previous discs in the archive.

WARNING CD and DVD media are not intended to be used as the only method for archiving medical information. An overall strategy for archiving medical information that includes CD and DVD media must ensure that multiple copies of the information be stored at multiple locations. Media quality, handling, and storage conditions are important factors that must be considered.

NOTE: *A feature key is required for the Scheduled Archive feature. Contact Codonics Technical Support or your Sales Representative to acquire the proper feature key.*

Scheduled Archive operation can be controlled by modifying the Scheduled Archive Profile (refer to page 11-2) or from the Virtua C user interface (refer to page 11-7).

Scheduled Archive Profile

Scheduled Archive can be enabled, and default parameter settings defined, by modifying the Scheduled Archive Profile.

For general information about modifying a profile, refer to "Creating and Modifying Profiles" on page 3-6.

The Scheduled Archive Profile, **archive.default.txt**, is stored in the **\profiles\scheduling** folder on the SmartDrive.

The format and parameters of the Scheduled Archive Profile text file are defined in the following table.

Table 11-1. Scheduled Archive Profile Format and Parameters

Parameter	Description
`[ ScheduledArchiveProfile ]`	Section identifier. This parameter must occur before all other parameters in the file. *NOTE: Do not change this identifier.*
`enabled =`	Specifies if the Scheduled Archive feature is enabled or disabled. Choices are: True, False (the default).

`runOnMonday =`
`runOnTuesday =`
`runOnWednesday =`
`runOnThursday =`
`runOnFriday =`
`runOnSaturday =`
`runOnSunday =`
	Specifies which days of the week the Scheduled Archive feature will automatically run.
	
	Choices are: True, False (the default).

`waitForFullDisc =`	Specifies whether the Scheduled Archive feature will wait until enough studies are present to record at least 70% of the media. Choices are: True (the default), False.

Table 11-1. Scheduled Archive Profile Format and Parameters (Continued)

Parameter	Description
`includeSelfCheckProgram =`	Specifies whether to include a self-check program on the disc. Choices are: True, False (the default). If True, each archive disc will include a checksum and a disc integrity check program. The program can be run to check whether the original recorded data on the disc has been altered, whether the disc is a copy of an original, or whether the disc data has been corrupted over time or through improper handling.
`verifyDiscsAfterRecord =`	Specifies whether to perform a read-after-write disc verify as part of the data recording. Choices are: True (the default), False. If True, a data integrity check will be performed on the disc automatically at the conclusion of the recording operation. If the verification fails, the disc will have a reject label printed on it. Verifying discs can double the record time, but provides the greatest assurance that the archive data has been recorded properly.
`copies =`	Specifies the number of copies of each archive disc to create. Choices are: 1 (the default) to 99.
`daysToWaitForReport =`	Specifies the number of days to leave a study unarchived while waiting for a report. This helps make better use of disc space in the archive by avoiding archiving a study once when it is received, then archiving the entire study a second time when the report arrives. A value of 0 means do not wait for the report. Choices are: 0 (the default) to 99.

Table 11-1. Scheduled Archive Profile Format and Parameters (Continued)

Parameter	Description
`timeOfDay =`	Specifies the time of day that Scheduled Archive operations will run. This applies to all seven days of the week. If AM or PM is included after the time, then the time is in 12-hour format. Otherwise, the time is 24-hour format. Format is: *hh:mm* [optional AM or PM] The default is 03:00 AM. *NOTE: To prevent the automatic study removal and the archiving operations from occurring at the same time, the default archiving operation is set to 3 AM, while automatic study removal is set to 2 AM.*
`discLabel =`	The file name of the label to be printed on the archive disc. Preinstalled archive label choices are stored in the SmartDrive **\labels\archive** folder. Default is Ink_Saver_Archive. For an example of this label, refer to “Scheduled Archive Disc Labels” on page 11-14.

Table 11-1. Scheduled Archive Profile Format and Parameters (Continued)

Parameter	Description
`includedDicomViewer =`	Specifies the name of the file that contains the DICOM viewer application to be included on the disc. To include multiple DICOM viewer applications on a disc, add an includedDicomViewe**r** entry for each viewer. The DICOM viewer applications that are available to a site are included in the **\viewers** folder on the SmartDrive. The default viewer application is Clarity_Viewer.vwr (the Codonics Clarity Viewer for English). If the value is blank, no viewer will be included on the disc. ***NOTE:*** *At the time of publication, English and Japanese Clarity Viewers, and the Osirix Viewer for the Apple Macintosh platform, are included standard with Virtua C. Other viewers are sold separately. For other supported third-party viewers, refer to the Virtua Viewers page at* ***www.codonics.com/Products/Viewers****.*
`mediaType =`	Specifies the type of media on which to record the studies. Choices are: CD or DVD (the default).

A sample Scheduled Archive Profile would look like the following:

```
[ScheduledArchiveProfile]
enabled = true
runOnMonday = true
runOnTuesday = false
runOnWednesday = true
runOnThursday = false
runOnFriday = true
runOnSaturday = false
runOnSunday = false
waitForFullDisc = true
includeSelfCheckProgram = false
verifyDiscsAfterRecord = false
copies = 1
daysToWaitForReport = 0
timeOfDay = 03:00
discLabel = Ink_Saver_Archive
includedDicomViewer = Clarity_Viewer.vwr
mediaType = DVD
```

Scheduled Archive in the User Interface

Scheduled Archive can be controlled from the **Schedule** tab on the **Setup** screen in the user interface. The Scheduled Archive function is accessible by anyone logged in with administrator permissions.

All settings made on the **Schedule** tab are stored on the SmartDrive in the Scheduled Archive Profile. For information about the Scheduled Archive Profile, refer to “Scheduled Archive Profile” on page 11-2.

CAUTION If a user deletes a study manually before it is archived, that study will not be included in the archive set.

The following table describes the Scheduled Archive options.

Table 11-2. Scheduled Archive Options

Option	Description
Enabled/Disabled	Enables or disables Schedule Archive operation. If Scheduled Archive is disabled in the Scheduled Archive Profile, automatic archiving functions are suspended, but manual archiving can still be performed by clicking the **Start Archive** button. This means that studies received by Virtua C will not be automatically archived and will be deleted when space is needed for new studies. If Scheduled Archive is enabled in the Scheduled Archive Profile, archive operations are performed automatically based on the Schedule options. This happens even if no user is logged in. All studies received by Virtua C are recorded onto an archive disc before they are deleted from the system. An archive job will be started automatically if space is needed before a scheduled archive occurs.
Schedule	Select the days, and the time of day, when the archiving operation should occur.
Disc Label	Type of archive label to be printed on the disc. A special set of archive labels are stored on the SmartDrive in the folder **\labels\archive**. These labels contain specific information for easy identification of archive discs. The default label is Ink_Saver_Archive. Additional custom labels can be created and stored on the SmartDrive. For more information about creating custom archive disc labels, contact your Codonics representative.
Wait for Full Disc	Ensures that archive discs are full or near full by deferring an archive cycle until enough studies are present to fill a disc.
Copies	How many copies of an archive disc will be created. Multiple sets of discs allow separate archive sets to exist for additional redundancy.

Table 11-2. Scheduled Archive Options (Continued)

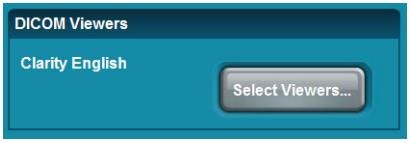
Option	Description
DICOM Viewers	Specifies the types of DICOM viewer applications to include on the disc. For instructions on how to select viewers, refer to “Selecting DICOM Viewers” on page 11-10. Choices are: No DICOM Viewer, Clarity English (the Codonics Clarity English viewer), Japanese Viewer (the Japanese version of the Clarity Viewer), and any other purchased viewers. ***NOTE:*** *At the time of publication, the Clarity Viewers are included standard with Virtua C. Other viewers are sold separately. For other supported third-party viewers, refer to the Virtua Viewers page at* ***www.codonics.com/Products/Viewers****.*
Start Archive	Manually starts an archive operation.
Stop Archive	Stops an archive operation that is in progress. Any files that were not archived when the operation was stopped will be included in the next archive operation.

Selecting DICOM Viewers

Virtua C allows the recording of multiple DICOM viewers on disc (both general purpose viewers and specialized viewers).

To select the DICOM viewers

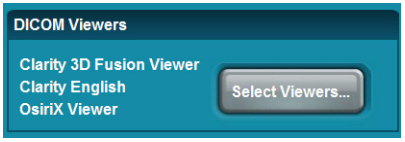
1. On the **Schedule** tab, click the **Select Viewers** button.



2. Viewers can be selected or de-selected on the **Select Viewers** screen. Select the viewers to be included on the disc.

3. When all the desired viewers have been selected, click the **OK** button.

   The selected DICOM viewers are now listed in the **Schedule** tab.



Please note the following issues before selecting multiple DICOM viewers:

- Use of multiple viewers on a disc reduces the available disc storage for recording patient studies.
- The Siemens *syngo*® XS Imaging Viewer and the eFilm Lite™ Viewer may not be recorded together on a disc. Virtua C will prevent the user from inadvertently selecting these two viewers together.
- The Siemens *syngo*® XS Imaging Viewer and the Siemens Media Viewer may not be recorded together on a disc. Virtua C will prevent the user from inadvertently selecting these two viewers together.
- When the OsiriX® Viewer is selected with other viewers, the name of the viewer (OsiriX) is not displayed as a viewer option when a disc is loaded in a PC. The OsiriX viewer is for the Apple® Macintosh® platform and runs on Macintosh OS 10.5 or greater. The OsiriX viewer cannot be used in a Windows® environment. The OsiriX viewer can be selected with other viewers to produce a disc that can be used with Windows or Mac.
- The MIMviewer™ and Siemens *syngo*® XS Imaging Viewer must be able to read each study on a disc. Each viewer reports a problem if any study on a disc is not compatible. This issue is independent of the number of viewers on a disc.
- Custom viewers can be used with other viewers. However, compatibility should be tested with desired viewers. Refer to the Codonics Virtua 3rd Party Viewer Technical Brief for instructions on use and proper packaging of custom viewers.
- Discs created with more than one DICOM viewer will not list the viewer names on the label. Labels list the number of viewers (for example, Viewer: 2 DICOM Viewers).

Selecting a DICOM Viewer to View Images on a Disc

When a disc with multiple viewers is used in Windows, the LaunchPad screen displays.

This screen includes a drop-down menu that lists the available viewers. Select the desired viewer, then click the **DICOM Studies** button to launch the viewer.

NOTE: *If the* ***DICOM Studies*** *button is clicked without selecting a viewer, the first viewer in the list will be launched.*

Archive Disc Creation

There are three ways an archive disc is created:

- A specific time, as set using the options on the **Schedule** tab.
- Started manually by clicking the **Start Archive** button.
- Automatically when unarchived studies need to be deleted to make room for new studies. This can happen at any time. It ensures that studies are archived before they are deleted.

All archive operations keep track of studies that have been successfully written to an archive disc. If an archive operation fails for any reason, the studies are preserved on Virtua C until successfully written to an archive disc. This ensures that studies will not be automatically deleted when an archive operation fails.

Archive Disc Content

Each archive disc is IHE PDI-compliant with DICOM studies that conform to DICOM Part 10 specifications. Studies on the disc can be imported into PACS or DICOM review workstations. A DICOM viewer can be included on the disc, which allows the studies to be directly viewed on a PC.

Archive Log Files

The log file **archiveLog.csv**, which contains a cumulative list of all studies archived on all discs to date, is included at the root level of each archive disc. This means that the last disc on an archive can always be used to search for any study in the archive.

The archive log file is in CSV (Comma Separated Values) format. The archive log can be opened in any spreadsheet application, such as Excel.

Also, when an archive disc is loaded into a PC, the LaunchPad application opens automatically. To open the log file in the PC's default spreadsheet application, click the **Archive Log** button.

Each line in the log file represents one study in the archive and contains the data in the following order:

> Archive Disc Number, Archive Date, Patient Name, Patient ID, Patient DOB, Study Date, Modality, Report Included, Study Description, Referring Physician, Accession Number

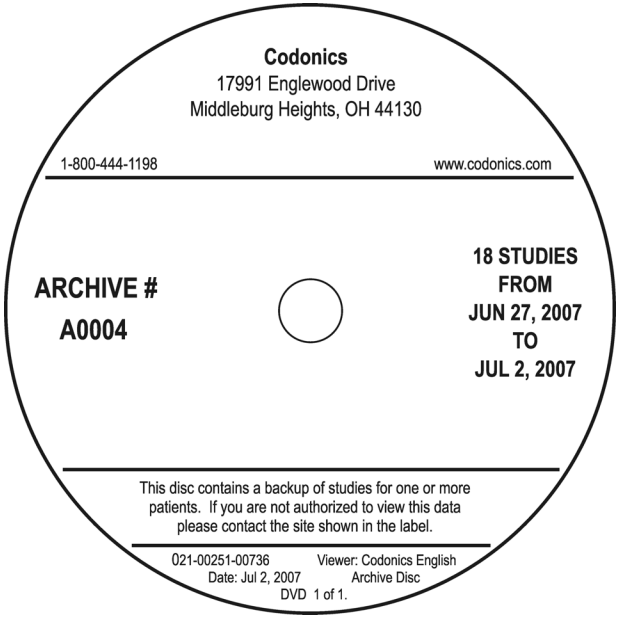
Following is a sample study entry:

```
"A0001", "6/28/07", "FIRENZE, MARY", "000000
06272007152346", "9/11/54", "6/27/07", "DR", "",
"PANCREAS", "WOHLERT", "000000 06272007152346 "
```

Scheduled Archive Disc Labels

To support Schedule Archive, archive disc labels are stored in the **\labels\archive** folder on the SmartDrive. These labels are available for selection from the **Disc Label** option in the **Schedule** tab.

The following is an example of the default Scheduled Archive disc label.



Custom archive disc labels can also be created and stored in the **\labels\archive** folder. For more information about creating custom archive disc labels, contact your Codonics representative.

12 Maintenance

Recording Log Files to a Disc

Virtua C maintains log files of all recorded studies, patient information, and processing activities. If required to meet your organization's HIPAA regulations, you can record these files to a disc.

You must be logged in as a user with administrator privileges to perform this procedure.

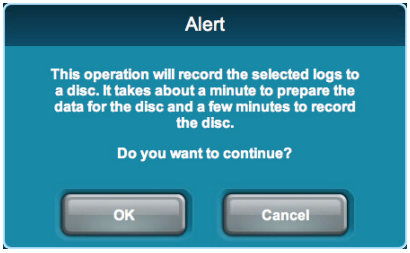
CAUTION Use caution when distributing log files that include patient information.

To record log files to a disc

1. Click the **Utilities** button, then click the **Diagnostics** tab.

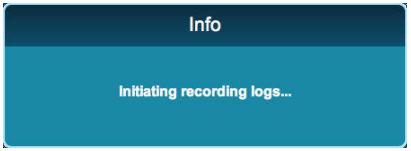
2. Use the **Record Logs** scroll buttons to select the log file type to capture. The options are:
   - **System Logs.** Records all logs that do not contain patient information.
   - **Patient Logs.** Records all logs containing patient information.
   - **Patient and System Logs.** Records all logs.
3. Click the **Record** button.

   A confirmation alert displays.


Alert
This operation will record the selected logs to a disc. It takes about a minute to prepare the data for the disc and a few minutes to record the disc.
Do you want to continue?
OK
Cancel

4. Click the **OK** button to continue with the capture (or the **Cancel** button to cancel it).

   Status information displays.



   When the capture is complete, the **Diagnostics** tab displays.

If patient log files were recorded, the name of the Virtua C user who initiated the log file recording is included in the logs.

Backing Up SmartDrive Files

As a security measure in the event that the SmartDrive is not working properly or is lost, you may also want to back up the files on the SmartDrive.

To copy SmartDrive files to a PC

1. Notify all Virtua C users to log out.
2. On the **Studies** and **Discs** tabs, verify that no jobs are being processed.
3. Log out and shut down the system (refer to "Logging Out" on page 3-56 and "Shutting Down and Rebooting" on page 3-56).

   The device powers off at the end of the shutdown process.

NOTE: *If you do not shut down the system before removing the SmartDrive, a message displays indicating that the SmartDrive has been removed. Once it is reinserted, the system prompts you to restart Virtua C.*

4. Remove the SmartDrive from the USB port at the rear of the Virtua C.

5. Mount the SmartDrive in a USB port on a PC or other USB-compatible computer.

   The SmartDrive will appear as a standard USB flash drive.

6. Copy the desired folder and files on the SmartDrive to a folder on the PC.
7. When you have finished copying the log files to the PC, unmount the SmartDrive from the computer, then insert it back into the Virtua C USB port.
8. Power on Virtua C by pressing the System power button at the front of Virtua C.

Security Features

Virtua C provides two user-configurable security features designed to reduce the threat from malicious software attacks by viruses, adware, worms, and trojan horses:

- A **software firewall** restricts incoming access to specific network services.
- A **method for external scanning** of the Virtua C hard drive by commercial anti-virus programs allows detection of files containing malicious software.

It is important to note that Virtua C security features should be part of an overall strategy for device security. Do not rely on these features as the only means for preventing malicious software attacks.

Software Firewall

Virtua C utilizes the standard Windows XP Embedded firewall to block incoming connections to network services. A software firewall can be enabled and configured by including several firewall parameters in the Network Profile. For more information, refer to "Network Profile Parameters" on page 3-9.

Virus Scanning

Virtua C can provide read-only access to internal hard drive partitions for scanning by commercial anti-virus programs. This is made available to IT departments as an alternative to loading anti-virus software on Virtua C.

CAUTION Virtua C is a medical device that contains software validated for proper operation only as configured from Codonics. Loading external software such as anti-virus programs can result in unsafe or ineffective operation. Codonics strongly advises against modification of the device or software in any way.

IT departments can access the hard drive partitions by remotely mounting the partitions as network drives. The Virtua C partitions and corresponding network names are:

Network Name	Partition
drive0	Program partition
drive1	First Data partition

Access to these partitions is read-only to prevent modification of the software.

If malicious software is detected, the remedy is to perform a full re-install of Virtua C software from the Operating Software disc.

The mapped network drives are password-protected to prevent unauthorized access to patient information. Contact Codonics Technical Support to obtain the username and password that allow access to the partitions.

If the firewall is enabled, remote mounting of the partitions requires setting the Network Profile parameter smbFirewallPortOpen to True. For more information, refer to “Network Profile Parameters” on page 3-9.

Additional Security Design Features

Virtua C software has security implemented at several levels. In addition to the firewall and external virus scanning functions, the following security design features have been implemented:

- **Windows XP Embedded configuration.** The Windows XP Embedded operating system has many unnecessary components removed to limit software attacks.
- **Autorun disabled.** External software will not run when loaded in the CD/DVD drives or on the USB port.
- **Limited built-in applications.** Virtua does not allow access to incoming e-mail, outgoing web access, or other applications not related to the function of the device. This greatly reduces the opportunity for malicious software to enter the system.
- **No keyboard or mouse.** Virtua C does not include a keyboard or mouse. Users are limited to accessing Virtua C using an external web-browser. Other applications cannot be loaded or accessed.

Ordering Disc and Print Supplies

The following table lists the disc and print supplies that can be ordered from Codonics:

Supplies	Catalog Number	Quantity
Codonics Virtua CD-R Standard Media	1VCA-TC833	600 discs
Codonics Virtua CD-R Premium Media	1VCA-RC933	300 discs
Codonics Virtua DVD-R Standard Media	1VCA-TD933	600 discs
Codonics Virtua DVD-R Premium Media	1VCA-RD833	300 discs
Codonics Virtua Tyvek Sleeves	V-SLEEVES	1,000 sleeves
Codonics Virtua Color Ink Cartridges	1VCX-LR833	4 cartridges

To order supplies in the U.S.A., contact Codonics Customer Service at:

Phone: **440.243.1198**
Fax: **440.243.1334**
Toll Free: **800-444-1198**
Web: **www.codonics.com**

To order supplies outside of the U.S.A., contact your Codonics representative.

Cleaning Virtua C

NOTE: *Do not attempt to oil or grease the robotic arm shaft or any other components. Any moving parts are designed to operate for the life of the device with no additional lubrication required. If service is required, contact Codonics Technical Support.*

To clean the Virtua C enclosure, first power off and unplug the device. Clean the cover with a clean soft cloth or towel slightly moistened with a mild soap and water solution. Allow the cover to completely dry before operating the device again.

CAUTION Always power off the device and disconnect the device's power cords before cleaning. Resume operation only after the surfaces are completely dry.

Installing Software

If you ever have to reinstall the software or install a software upgrade, refer to "Installing the Software" on page 3-2 or to the Technical Brief that accompanies the software installation disc.

All Virtua Technical Briefs are also available on the Codonics web site (**www.codonics.com/Products/Virtua**).

Preparing Virtua C for Shipping

If you have to ship the device for any reason (for example, to return it to Codonics for service), you must use the original boxes and packing materials. If you do not have the original box and packing materials, contact your Codonics representative for instructions on how to return the device.

Before repacking the device, remove the ink cartridge. For information about how to remove the ink cartridge, refer to "Installing the Color Ink Cartridge" on page 2-21.

Preparing Virtua C for Mobile Use

If the Virtua C is to be transported frequently between sites, remove all discs from the input bin. Shut down Virtua C (refer to "Shutting Down and Rebooting" on page 3-56), close the Recorder cover, and make sure that Virtua C is secured for mobile transportation. This can be accomplished by completely seating the Virtua C into the Docking Tray (catalog no. V-ECO-TRAY) and snugly pulling the Velcro strap around the Recorder, being careful to not over-tighten the strap.

Also, creating multiple Network Profiles can help to conveniently switch from site to site. For more information, refer to "Setting Up Network Profiles" on page 3-7.

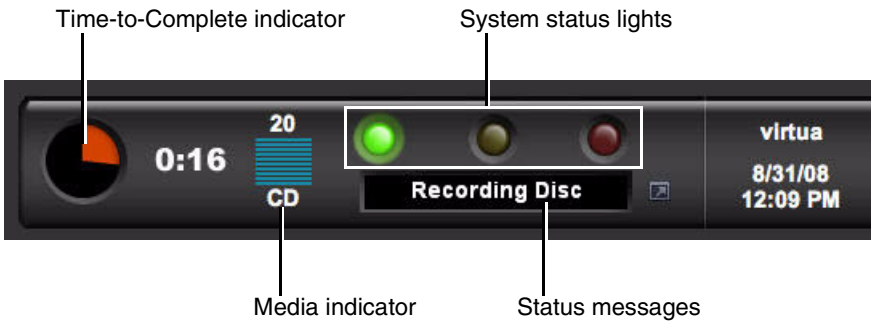
13

System Status and Troubleshooting

Checking System Status

Dashboard Indicators

The Dashboard, located at the top of most screens, provides graphical status indicators and information about Virtua C's operating condition.

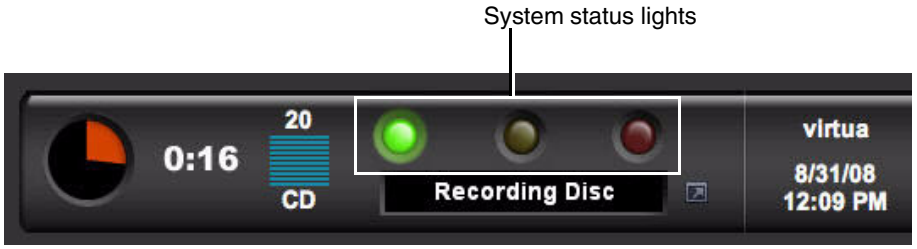


The Dashboard includes the following indicators:

- **Time-to-Complete indicator.** This indicates the estimated amount of time remaining for all pending jobs for the currently configured media type to complete. The round "timer" indicates the time remaining as an orange wedge. The larger the wedge, the more time is required. If the timer is solid orange, then at least one hour of time is required to complete all jobs. The digital display next to the timer shows the hours:minutes remaining.
- Input bin **Media indicator.** Shows the currently configured media type and how many discs remain in the input bin.
- **System status lights.** The three LED-style lights indicate the overall status of Virtua C. For more information about these, refer to the next topic, "Interpreting Dashboard System Status Lights".
- **Status messages.** Messages that provide basic information about Virtua C's operating state. Clicking the Dashboard displays more detailed status information.

Interpreting Dashboard System Status Lights

System status lights are located on the Dashboard.



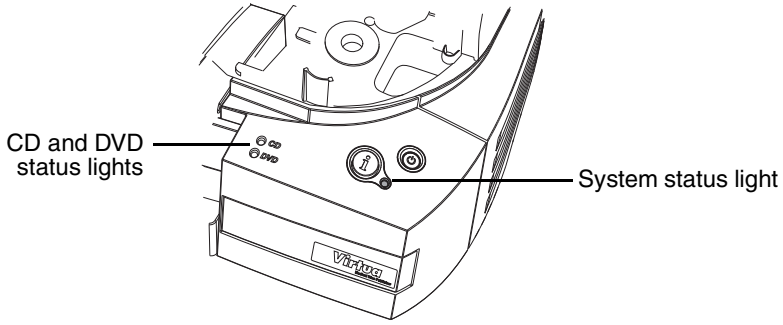
The following table explains how to interpret the state of the Dashboard System status lights.

Table 13-1. Dashboard System Status Lights

Status Light	Description
Green: On	Ready condition. The ready condition indicates Virtua C is properly configured and can accept studies for processing. The message “Ready” also displays in the Dashboard status message area.
Green: Flashing	Processing. This processing state indicates Virtua C is receiving a study, preparing a study for recording, or recording and labeling a disc. The status column of the Studies list and Discs queue, and the Dashboard status message area, display the details of what is being processed.
Yellow: On	Alert condition. An alert condition indicates Virtua C requires user attention but can still process jobs. The specific alert condition is displayed in the Dashboard status message area. Examples are: Low on Ink; Job Waiting (DVD).
Red: On	Fault condition. A fault condition indicates Virtua C cannot process jobs and requires user attention. The specific fault condition is displayed in the Dashboard status message area. Examples are: Out of Discs; Out of Ink; SmartDrive Not Found.

Front Panel Status Lights

LED status lights are located on the Controller front panel.



The following table explains how to interpret the state of the front panel status lights.

Table 13-2. Front Panel Status Lights

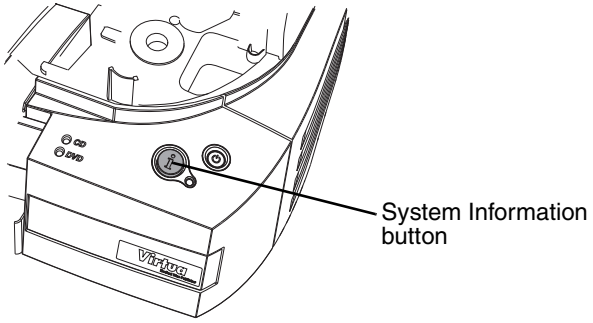
Light State	Description
All lights off	Virtua C is powered off.
System status light: Steady green	Ready. This state indicates that Virtua C is ready to receive jobs.
System status light: Flashing green	Processing. This state indicates that Virtua C is receiving a study, preparing a study for recording, or recording and labeling a disc. The status column of the Studies list and Discs queue and the Dashboard status message area display the details of what is being processed.
System status light: Yellow	Alert condition. An alert condition indicates that Virtua C requires user attention but can still process jobs. The specific alert condition is displayed in the Dashboard status message area. Examples are: Low on Ink; Job Waiting (DVD).

Table 13-2. Front Panel Status Lights (Continued)

Light State	Description
System status light: Red	Fault condition. A fault condition indicates Virtua C cannot process jobs and requires user attention. The specific fault condition is displayed in the Dashboard status message area. Examples are: Out of Discs; Out of Ink; SmartDrive Not Found.
CD or DVD status light: Off	Virtua C is not currently configured for that media type, and no jobs for that media type queued.
CD or DVD status light: Green	Virtua C is currently configured for that media type.
CD and DVD status light: Yellow	There are jobs queued for that media type, but discs of the other media type are currently configured.
CD and/or DVD status lights: Red	Virtua C is currently configured for that media type, but the input bin is empty.
CD or DVD status light alternately flash green and off	Virtua C is either starting up or shutting down. Once Virtua C has completed startup and is ready for use, the media status lights will be on or off, depending on the media configuration.

Front Panel System Information Button

To play a narrated message that indicates the Virtua C current status, press the System Information button on the front panel.



Setting the Narrated Message and Alert Beep Volume

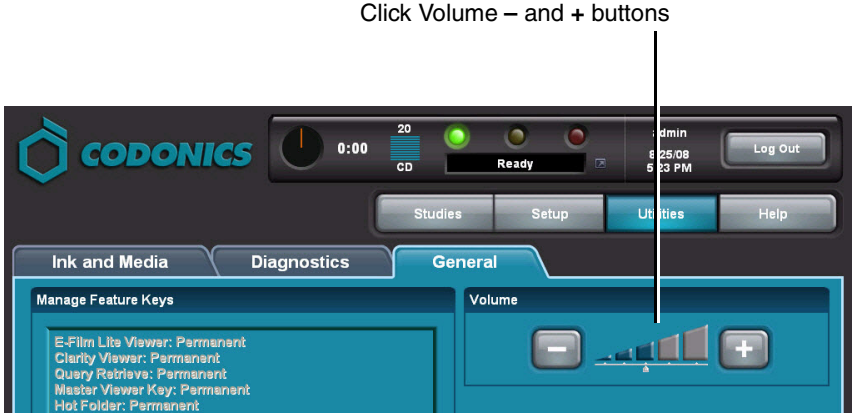
You can set the volume for the narrated messages that play when the System Information button is pressed and for the alert beep.

You must be logged in as a user with administrator privileges to set the volume (refer to "Logging In" on page 3-14).

To set the narrated message and alert beep volume

1. Click the **Utilities** button.

   The **Utilities** screen displays.
2. If not already displayed, click the **General** tab.
3. Click the **–** and **+** buttons to adjust the volume.



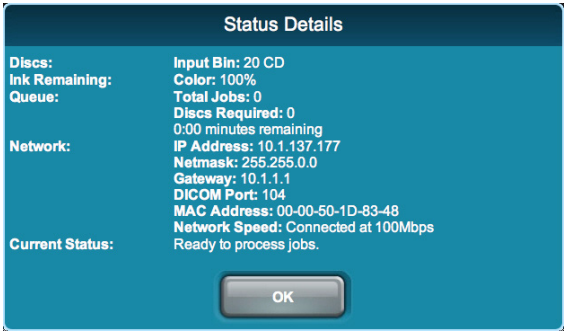
Displaying System Status Details

You can display the Status Details window to view more detailed information about system status than is available on the Dashboard, including the ink cartridge state, total jobs in the queue, the network settings, and the MAC address.

To display detailed information about system status

Click the status indicator (left) portion of the Dashboard.

The **Status Details** window displays.



Troubleshooting Common Problems

The following table lists common problems, their possible causes, and how to solve them.

Table 13-3. Troubleshooting

Problem	Possible Causes	Solutions
General System		
The user interface responses are slow or sluggish.	Too many remote web access sessions are active.	For faster response, limit the number of remote web access sessions to ten.
The message "Network server not found" is displayed in the web browser.	Virtua C did not start up properly.	Reboot Virtua C.
	The network settings are incorrect.	Remove the SmartDrive, mount it on a PC, and check whether the network settings in the file **\profiles\network\network.default.txt** are correct.
	Improper hardware setup.	Verify that the network cable is connected.
		Verify that the SmartDrive is connected.
Message indicates that the SmartDrive is not installed.	The SmartDrive has been removed.	Verify that the SmartDrive is properly inserted in the USB port (behind the output bin).
	The SmartDrive does not have a valid license or security code.	Verify that a valid SmartDrive is inserted.
	Data stored on the SmartDrive is missing or corrupt.	Contact Codonics Technical Support.

Table 13-3. Troubleshooting (Continued)

Problem	Possible Causes	Solutions
Virtua C default usernames **admin** or **virtua** do not work.	Caps Lock is on when entering the password.	Turn the keyboard's Caps Lock off and reenter the password.
	Usernames or passwords are corrupted, or the passwords have been forgotten.	Remove the SmartDrive and mount it on a PC. Delete the files **\profiles\user\user.admin.txt** and **\profiles\user\user.virtua.txt** from the SmartDrive, reinsert it into Virtua C, and reboot Virtua C. Virtua C will automatically recreate the **admin** and **virtua** login accounts with the password **codonics**.
Site-defined usernames do not work.	Usernames or passwords have been forgotten.	Log in as **admin**, click the **Setup** button, then click the **Users** tab. Verify that the username is present and change the password if necessary.
The entire Virtua C user interface is not being displayed in the web browser window.	The browser window is too small.	Increase the browser window size.
	The Windows display resolution is not high enough to display the entire Virtua C user interface (which is 1024 x 768 pixels).	Change the Windows display resolution.
	The monitor's screen is too small.	Use a monitor with a larger screen.
Virtua C does not shut down after waiting for 2 minutes.	The software did not shut down properly.	Press and hold the System power button at the front panel for at least 5 seconds to force Virtua C to power off.
The date and time format are not correct.	The locale is not set correctly.	Set the locale for the region in which Virtua C is being operated. Refer to "Setting Up the Locale Profile" on page 9-7.
	The locale is correct but the format does not match the user preference.	Try a different locale that uses the same language but a different date and time format.

Table 13-3. Troubleshooting (Continued)

Problem	Possible Causes	Solutions
Studies and Jobs		
Studies that were sent are not being displayed in the Studies list.	The Studies list filter needs to be changed.	Set the Studies list filter to the appropriate setting (New, Yesterday, Today, or All).
	Old studies might have been automatically deleted to make room for new studies.	Virtua C will automatically remove old studies that have been successfully recorded when space is needed for new studies. This is normal.
Studies sent together for auto-record jobs are being recorded on separate discs.	The discStudyGrouping parameter in the Job Profile is set to byStudy.	Set the discStudyGrouping parameter in the Job Profile to byPatient. Refer to "Setting Up Job Profiles" on page 3-31.
	The endOfStudyTimeout value in the Job Profile is too low.	Increase the endOfStudyTimeout value in the Job Profile.
The transfer of studies from PACS to Virtua C is slow.	Some PACS store studies at a low priority, which causes slow transfer times.	Try sending studies directly from a modality workstation instead of PACS.
		Contact the PACS vendor and ask if there is a way to increase the performance of DICOM store requests.
Jobs are being recorded on an unexpected media type.	The Job Profile's media type is set to Auto, so Virtua C is selecting the media type based on the size of the job.	Set the media type to CD or DVD, depending on which type the job should be recorded. To change the default setting in the Job Profile, refer to "Setting Up Job Profiles" on page 3-31. To override the Job Profile setting for a particular job, refer to "Manual Mode" on page 5-4.
Jobs that were previously recorded are not being displayed in the Discs queue.	The Discs queue filter needs to be changed.	Set the Discs queue filter to the appropriate setting (Queued, Recorded, or All).
	The Discs queue might not be sorted properly.	Verify that the desired column is selected on the Discs screen.
The job results in an error.	The discs loaded in the input bin do not match the currently configured media type.	Make sure that the loaded discs match the currently configured media type.

Table 13-3. Troubleshooting (Continued)

Problem	Possible Causes	Solutions
Discs		
The Dashboard does not accurately report the number of discs in the input bin.	The robotic disc transporter is out of alignment.	Contact Codonics Technical Support. Technical Support might have you run the Robotic Arm Calibration utility that is on the Virtua Accessories and Manuals disc.
	The reporting of the disc count is accurate to within one disc.	This is a normal tolerance for Virtua C.
Disc used for recording is different media type than expected.	Media type selection setup.	To verify or modify media type-related setup, refer to “Media Types and Profile Parameter Settings” on page 3-46 and “Configuring and Loading Media” on page 5-2.
Failed disk error.	Mishandling of the disc, causing fingerprints or scratches.	Handle discs carefully. Make sure that the recording side of the disc is clean and is not scratched.
	Low-quality discs.	Use only Codonics-recommended discs. Contact Codonics Customer Service for a current list of recommended discs and suppliers.
Disc jams.	The robotic disc transporter is out of alignment.	Contact Codonics Technical Support. Technical Support might have you run the Robotic Arm Calibration utility that is on the Virtua Accessories and Manuals disc.
Disc drive will not open.	Virtua C has had a failure while processing a job.	Cycle power to Virtua C.
Robotic disc transporter is not picking up discs reliably.	The robotic disc transporter is out of alignment.	Contact Codonics Technical Support. Technical Support might have you run the Robotic Arm Calibration utility that is on the Virtua Accessories and Manuals disc.
Robotic disc transporter knocks discs from the printer tray.	The robotic disc transporter is out of alignment.	Contact Codonics Technical Support. Technical Support might have you run the Robotic Arm Calibration utility that is on the Virtua Accessories and Manuals disc.

Table 13-3. Troubleshooting (Continued)

Problem	Possible Causes	Solutions
Robotic disc transporter does not pick discs from the disc drives.	The robotic disc transporter is out of alignment.	Contact Codonics Technical Support. Technical Support might have you run the Robotic Arm Calibration utility that is on the Virtua Accessories and Manuals disc.
System reports a disc error or the drive makes a rumbling noise.	Multiple discs or a clear plastic disc are in the disc drive.	Remove extra discs or the clear plastic disc from the disc drive.
Labeling		
Fault condition and message: "Replace or remove Color ink cartridge."	Color ink cartridge is empty.	Install a new cartridge.
Virtua C does not print the label.	The ink cartridge is empty.	Install a new cartridge.
	The ink cartridge is clogged.	Run the Clean Ink Cartridge utility; refer to "Cleaning the Ink Cartridge" on page 13-20.
	The ink cartridge still has the protective seal on it.	Remove the ink cartridge and peel the protective seal from the cartridge.
	Low-quality discs are being used.	Virtua C is designed to print labels on certain brands of discs with specific printable surfaces. Use only Codonics-recommended discs. Contact Codonics Customer Service for a current list of recommended discs and suppliers.
Printed label has ghosting.	The ink cartridge is out of alignment.	Run the Align Ink Cartridges utility. Refer to "Aligning the Ink Cartridge" on page 13-19.
Printed label is not properly centered on disc.	The ink cartridge is out of alignment.	Run the Align Ink Cartridges utility. Refer to "Aligning the Ink Cartridge" on page 13-19.
Print is light, there is banding or gaps, or there is no print image.	The ink cartridge is low or out of ink.	Replace the ink cartridge. Refer to "Installing Ink Cartridges" on page 2-30.
	The ink cartridge is clogged.	Run the Clean Ink Cartridges utility. Refer to "Cleaning the Ink Cartridge" on page 13-20.

Table 13-3. Troubleshooting (Continued)

Problem	Possible Causes	Solutions
Boxes or incorrect characters are being printed.	The locale is not set correctly.	Set the locale for the region in which Virtua C is being operated. Refer to "Setting Up the Locale Profile" on page 9-7.
Japanese (or other East Asian) characters run together.	Standard-size labels are being used in a Japanese (or other East Asian) region.	Use the Wide version of the label.

Troubleshooting DICOM Structured Reports

DSR is not working.

- Verify that the DSR feature key has been installed and not expired, and that Virtua C is configured as expected.

DSR is properly configured for a broker interface, but Virtua is not receiving any reports.

- Try configuring the broker to accept connections from Virtua.
- Open the StoreSCP log file and look for an information message that starts with: "`Sending Query request for ...`". If this message is not present, then the queryProfileName parameter in the Report Profile is probably not configured correctly.
- Look for another message that starts with "`Found one report for ...`". If this and similar messages are not present, then the query attempt failed. Either the query profiles are not configured properly, or the broker needs to be configured properly.
- Similar messages may indicate that no reports were found. These indicate that the report is not present on the broker. Try another patient.

DSR is properly configured for a PACS interface, but Virtua is not receiving any reports.

- If a PACS is storing the reports, verify that the PACS is configured to send the reports with the studies.

Virtua is receiving reports, but they are missing text.

- If this is a broker connection, try changing the information_model parameter in the QRSCU Profile to MITRA S.
- Follow these steps and contact Codonics Technical Support for additional help:

  1. Delete the test study from Virtua C.
  2. Change the Report Profile doIncludeStructuredReport parameter setting to false.
  3. Reboot Virtua C.
  4. Resend the test study with a report to Virtua C.
  5. Record the study with report to disc.
  6. Record Virtua C Logs to disc.
  7. Send the discs to Codonics for further review.

Troubleshooting HL7 Reports

Variations in RIS systems and configuration issues in Virtua C HL7 settings can cause problems. Refer to the following information to troubleshoot HL7 report problems.

No HL7 Messages Are Being Received

1. Verify that Virtua C HL7 settings are correct. All parameters in the Virtua C HL7 Server Profile, **hl7.server.txt**, are case sensitive and must be spelled exactly as shown in this document. For more information about the HL7 Server Profile, refer to "HL7 Server Profile Settings" on page 10-12.
2. Verify Virtua C is receiving valid HL7 report messages.

   The report may not have been received or accepted. Open the HL7 server log file **HL7Server.001.0.log** and look for the following line:

   ```
   Received a Valid Report Message, Creating Report
   File
   ```

   If the line does not exist, contact Codonics Technical Support. If the line does exist, then continue troubleshooting.
3. Verify that the patient information contained in the HL7 report matches the DICOM study.

   The patient information may be different between the study and the report.

   Look for the following lines in the HL7 server log file:

   ```
   Querying database for: PatientRecord:
   name = APPLE^CANDY^
   id = ID011235
   dob = 19720905
   ```

   Compare the information in the HL7 server log file to the **Study Details** tab. If it matches, continue troubleshooting. If it is not identical [except for the caret (^) characters], then the match failed on the patient information. Change the value of the

matchPatientUsing parameter in **hl7.server.txt** to exclude the unmatched parameter and try again. If the information still does not match, contact Codonics Technical Support.

4. Verify that the accession number is formatted the same in the HL7 report and the DICOM study.

   The match may fail when comparing the exam date or accession number. To determine if this is the problem, change both the doMatchAccessionNumber and doMatchExamDate parameters in **hl7.server.txt** to false. Delete the study, then re-send the study and the report to the Virtua C. If the match still fails, contact Codonics Technical Support.

   If the match succeeds, then you must determine how to configure the doMatchAccessionNumber and doMatchExamDate parameters. At least one of these parameters must be true for proper operation.

   a. Record the study to a disc.

   b. Compare the exam date and accession number in the report to those on the **Studies** tab.

   c. If the accession numbers do not match, then set doMatchExamDate to true.

   d. If the accession numbers do match, then set doMatchAccessionNumber to true.

   e. Delete the study and try sending the report and study again.

   f. If the match is not successful, contact Codonics Technical Support.

5. Verify that the RIS is properly formatting and sending data fields in the HL7 reports.

Reports Are Missing Information or Are Improperly Formatted

If the reports appear to be missing information or improperly formatted, the problem may be that:

- Some data may not be sent by the RIS. It is possible that several of the data fields are blank when received by Virtua C.
- Some of the fields may be incorrectly filled by the RIS. For example, the RIS may place a random number in the Modality field.
- Some fields may not be properly formatted. For example, the observation text may be formatted for fixed width display, not variable width display.

The only way to know what is being sent is to examine the log files and the original message. Contact Codonics Technical Support to do this. The most likely solution is to change the report template file, **report.default.txt**, to properly format fields and to hide fields that have missing or incorrect data.

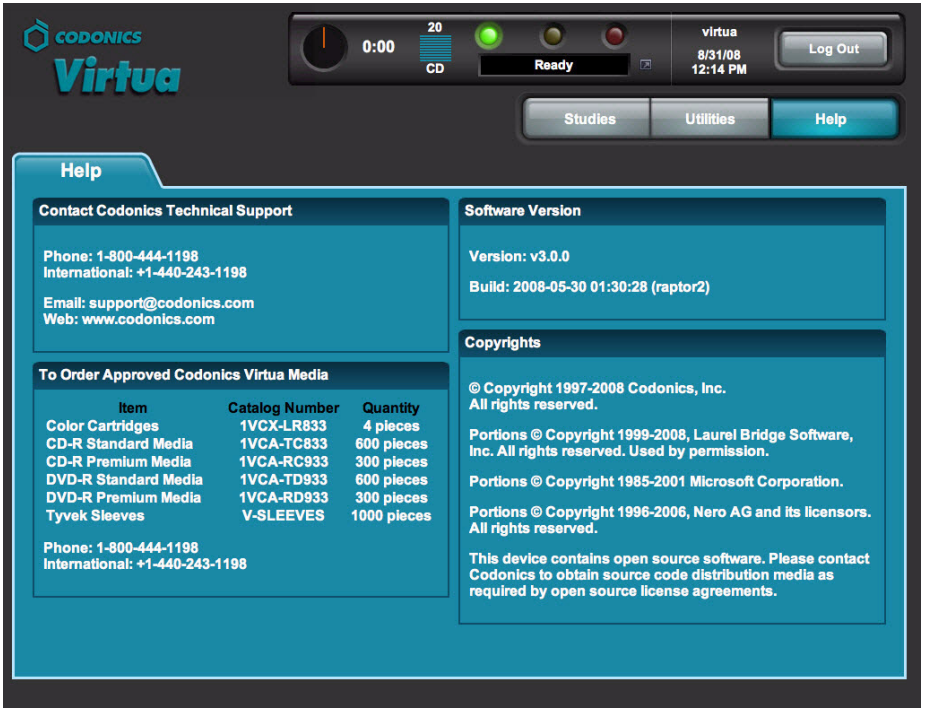
Displaying Support Information

The **Help** screen includes support information, such as Codonics contact information, as shown below.

To display support information

Click the **Help** button.

The **Help** screen displays.



Aligning the Ink Cartridge

Occasionally, the ink cartridge might become misaligned. This can cause ghosting in the printed images or misalignment of the printed image on the disc. You can correct this condition by running the Align Ink Cartridge utility.

To align the ink cartridge

1. Click the **Utilities** button.

   The **Utilities** screen displays.
2. If not already displayed, click the **Ink and Media** tab.
3. Click the **Align** button.

You are prompted to confirm the alignment.

4. Click the **OK** button to proceed.

   Alignment status messages are displayed on the Dashboard.

NOTE: *As part of the alignment procedure, a special alignment pattern label is printed on a disc, and the disc is placed in the output bin. You can dispose of this disc.*

Cleaning the Ink Cartridge

Occasionally, the ink cartridge might become clogged. This can cause light print, banding, gaps in the print, or no print image. You can correct this condition by running the Clean Ink Cartridge utility.

Any user can run this utility.

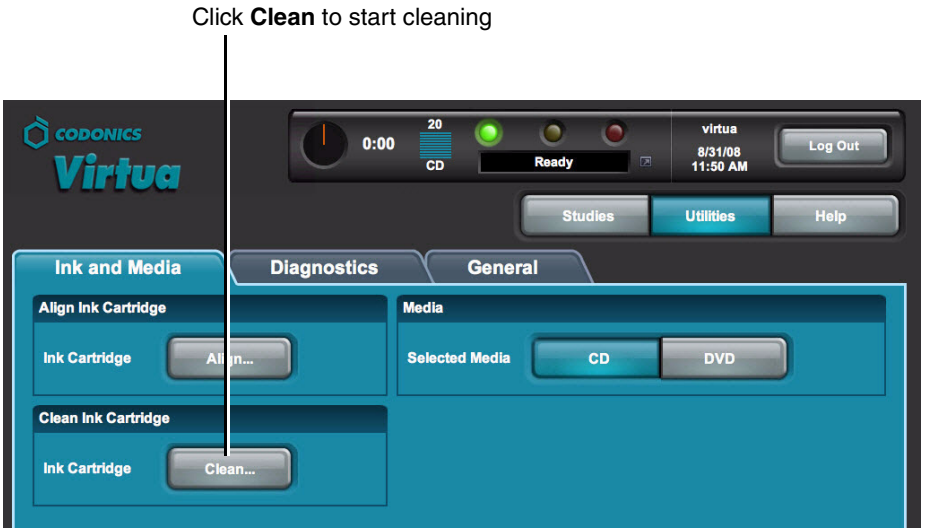
To clean the ink cartridge

1. Click the **Utilities** button.

   The **Utilities** screen displays.

2. If not already displayed, click the **Ink and Media** tab.

3. Click the **Clean** button.



You are prompted to confirm the cleaning.

4. Click the **OK** button.

Cleaning status messages are displayed on the Dashboard.

NOTE: *As part of the cleaning procedure, a special cleaning pattern label is printed on a disc, and the disc is placed in the output bin. You can dispose of this disc.*

Loading Demo Studies

Virtua C includes demo studies to allow you to verify recording and labeling operations without having to receive studies from other sources on the network.

You must be logged in as a user with administrator privileges to run this utility.

To load demo studies

1. Click the **Utilities** button.

   The **Utilities** screen displays.

2. If not already displayed, click the **Diagnostics** tab.

3. Click the **Load** button.

Click **Load** to load the demo studies

The demo studies are loaded and displayed in the **Studies** tab in the **Studies** screen, from which they can be recorded and labeled.

Allowing Remote Access

Virtua C provides a Connect to Support utility that allows Codonics Technical Support personnel to access Virtua C remotely and help users with configuration, troubleshooting, and general product usage questions.

You must be logged in as a user with administrator privileges to run this utility.

NOTE: *Only a user at the site can initiate the remote access connection to Codonics Technical Support. This prevents unauthorized access to Virtua C.*

CAUTION Initiate a remote access connection to Codonics only when requested by Codonics Technical Support personnel.

Virtua C must be connected to a LAN that has Internet access for this utility to work. Remote access requires that the firewall at the customer site allow outgoing and incoming network connections to Virtua C on TCP port 5500.

When a connection is made, Codonics Technical Support personnel can see the same screens as you and have the same control over Virtua C as you do. This allows you and Codonics to work cooperatively to solve problems.

You can disconnect the session at anytime. If either Codonics or a user at the site disconnect, only a user at the site can initiate a new connection.

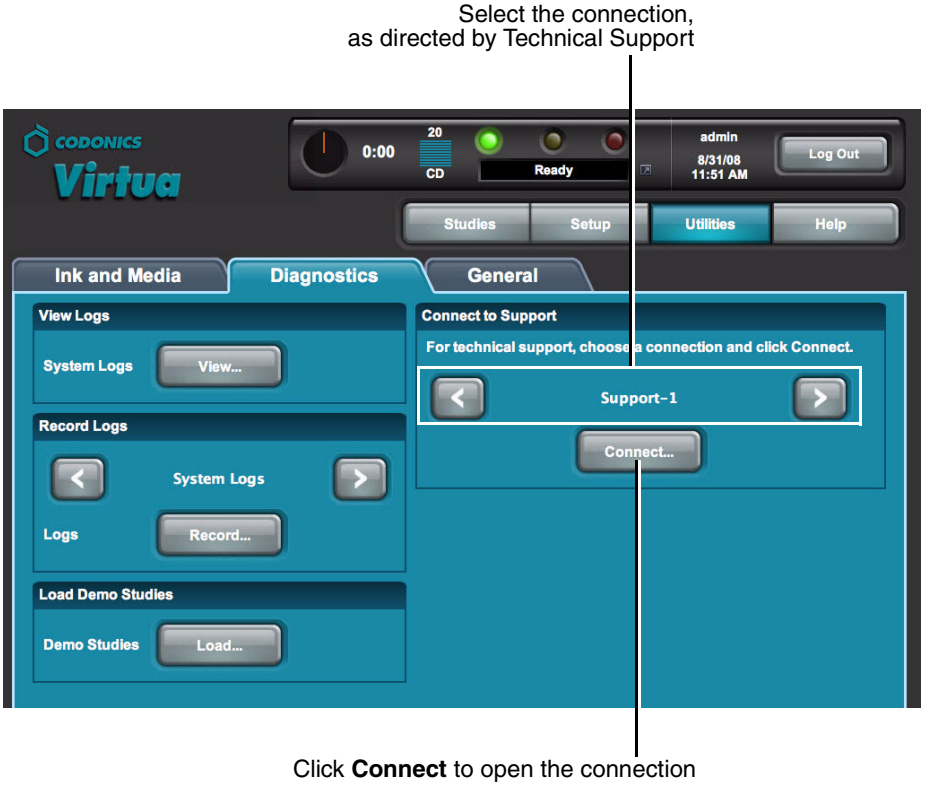
To allow remote access to Codonics Technical Support

1. Click the **Utilities** button.

   The **Utilities** screen displays.

2. If not already displayed, click the **Diagnostics** tab.

3. Click the arrow buttons to select the appropriate connection, as directed by Codonics Technical Support.



4. Click the **Connect** button to open the connection to Codonics Technical Support.

   Technical Support can now view the Virtua C user interface and control Virtua C. While connected, the **Connect** button changes to **Disconnect**.

5. When the session is complete, click the **Disconnect** button to end the connection.

System Logs

If your Virtua C is experiencing problems, Codonics Technical Support might ask you to view the system logs that are maintained by Virtua C. The following topic explains how to view the system logs.

Technical Support might also ask you to record the system log files to disc and send the disc to them. For more information on recording system log files to disc, refer to "Recording Log Files to a Disc" on page 12-1.

Viewing Log Files

You must be logged in as a user with administrator privileges to view the log files.

CAUTION System logs do not have the same user interface appearance and behavior as other screens. These logs should not be accessed unless requested by Codonics Technical Support personnel.

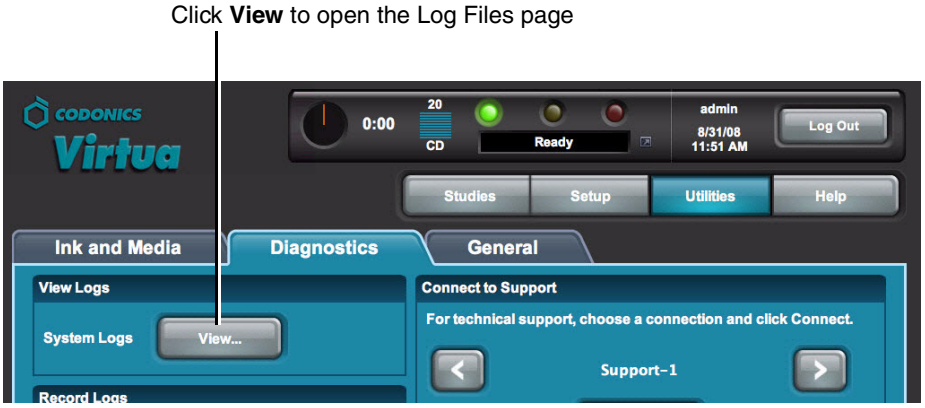
To view system log files

1. Click the **Utilities** button.

   The **Utilities** screen displays.

2. If not already displayed, click the **Diagnostics** tab.

3. In the **View Logs** panel, click the **View** button.



The Log Files list displays. Technical Support will direct you regarding which log files to access.

4. To close the **Log Files** screen and return to the **Utilities** screen, click the **Back** link on the Log Files home page.

A

Hazardous Material Information

Materials of Construction

Codonics has set very stringent standards for evaluating products to ensure the marketing of regulatory compliant products worldwide.

We do not intentionally add, nor are we aware, that the products or packaging contain the following materials:

- Mercury, except as used in lamp applications (for example, scanning lamps, backlit LCDs).
- Cadmium, except as used as thick film inks on printed circuit boards.
- Hexavalent Chromium, except as used as thick film inks on printed circuit boards, as chromate conversion coatings on metal surfaces, and as a photoresist on glass panels of cathode ray tubes.
- Polybrominated diphenyl ethers and polybrominated biphenyls.
- Bioavailable arsenic (small amounts of arsenic used in glass, LEDs, and semiconductors are not considered to be bioavailable).
- Bioavailable crystalline silica (small amounts of crystalline silica are used in certain paints, coatings, and filler materials).
- Polychlorinated biphenyls (PCBs).

- Asbestos.
- Organic tin (not used in tin lead solder applications).
- Ozone-depleting substances such as chlorofluorocarbons, methyl chloroform, and carbon tetrachloride.

Matériaux de Construction

Afin d'obtenir les certificats de conformité de ses produits dans le monde entier, Codonics utilise les standards d'évaluation les plus contraignants pour tester ses produits.

Codonics assure notamment n'avoir ajouté ou avoir été informé que soit ajouté les composants suivants dans son produit et son emballage:

- *Mercure, sauf dans le cas de systèmes d'éclairage (lampe à balayage, rétroéclairage LCD)*
- *Cadmium, à l'exception des encres de couche épaisse sur les circuits imprimés*
- *Chrome hexavalent, à l'exception des encres de couche épaisse sur les circuits imprimés, des protection de surface métallique et des photo résistances de tubes cathodiques*
- *Des éthers de diphényl polybromé ou des biphényls polybromés*
- *Arsenic (de très faible quantité d'arsénic sont présents dans le verre, les leds et les semi-conducteurs sans portée atteinte à l'organisme)*
- *Cristaux de silicium*
- *Biphenyls polychlorés*
- *Amiante*
- *Matières organiques*
- *Substances portant atteinte à la couche d'ozone tels que des carbones chlorofluorés du chloroforme et des tétrachlorures de carbone*

Manufacturing

During manufacturing operations that produce Codonics products (including packaging), no ozone depleting substances (such as chlorofluorocarbons, methyl chloroform, and carbon tetrachloride) are used.

Fabrication

Aucun composant susceptible de détruire la couche d'ozone ne sont utilisés lors de la fabrication (emballage inclus) des produits Codonics.

B Specifications

Specifications (English)

Media Inputs:	One 20-disc input bin
Media Outputs:	One 25-disc output bin
Number of Drives:	One 18x DVD-R/CD-R dual-layer drive
Recordable Formats:	CD-R, DVD-R
Label Print Technology:	Inkjet
Print Resolution:	Up to 4,800 dpi
Ink Cartridges:	One color cartridge (CMY)
Throughput:	25 CDs or 10 DVDs per hour (recorded and labeled)
User Interface:	Remote web browser access via Internet Explorer
Processor:	Intel® Celeron™ D
Memory:	2 GB
Data Storage:	40 GB
Interfaces:	1 10/100 Base-T/Gigabit Ethernet (RJ-45) 5 USB 2.0 ports
Network Protocols:	DICOM Store SCP (up to 12 simultaneous connections) HTTP Web Server (for remote control and configuration)
SmartDrive:	USB flash drive for storing configuration data
Dimensions:	Height: 10.5 in (26.7 cm) Width: 18.2 in (46.2 cm) Length: 21.7 in (55.1 cm)
Weight:	32 lbs (14.6 kg)

Power:	100–240 VAC auto-switching, 50/60 Hz, 175 VA (rated power)	
Environmental:	*Operating:*	
	Temperature:	15–30°C (59–86°F)
	Humidity:	20%–80% noncondensing
	Shipping and Storage:	
	Altitude:	Sea Level to 5790 m
	Temperature (Hardware):	-22.2–51°C (-8–123.8°F)
	Temperature (Ink):	1–43°C (34–110°F)
	Humidity (Hardware):	5%–85% noncondensing
	Humidity (Ink):	5%–80% noncondensing
Medical Compliance:	FDA cleared to market (Class 1 device)	
Regulatory:	Full medical device compliance including FDA and MDD CE Class I, GMP/QSR ISO 13485-2003, and 60601-1 Safety and EMC/EMI for Healthcare Facilities	
Classification:	Class 1 equipment, type ordinary IPX0, continuous with intermittent loading	

Spécifications (Français)

Magasin d'alimentation:	*Un magasin d'alimentation de 20 disques*
Magasin de sortie:	*Un bac de sortie d'une capacité de 25 disques*
Nombre de graveurs:	*Un double lecteur 18x DVD-R/CD-R*
Formats de gravure:	*CD-R, DVD-R*
Technologie d'impression:	*Jet d'encre*
Résolution de l'impression:	*Jusqu'a de 4800 dpi*
Cartouche d'encre:	*1 cartouche couleur (CMY)*
Débit:	*25 CDs/h, 10 DVDs/h (gravure et impression)*
Interface utilisateur:	*Un navigateur web accessible a distance via Internet Explorer*
Processeur:	*Intel® Celeron™ D*
Mémoire:	*2 Go*
Sauvegarde de donnees:	*40 Go*
Interfaces:	*1 10/100 Base-T/Gigabit Ethernet (RJ-45)* *5 ports USB 2.0*
Protocoles réseaux:	*Un navigateur Web accessible a distance via Internet Explorer*
Mémoire flash:	*Carte mèmoire flash pour l'enregistrement des paramètres de configuration*
Dimensions:	*Hauteur: 26.7 cm* *Largeur: 46.2 cm* *Profondeur: 55.1 cm*
Poids:	*14.6 kg*
Alimentation:	*100–240 VAC auto-commutation, 50/60 Hz, 175 VA (puissance nominale)*

Environnement:	*En fonctionnement:*	
	Température:	*15 à 30°C (59 à 86°F)*
	Humidité:	*20% à 80% sans condensation*
	Expédition et Stockage:	
	Altitude:	*Niveau de la mer à 5790 m*
	Température (Matériel):	*-22.2 à 51°C (-8 à 123.8°F)*
	Température (Encre):	*1 à 43°C (34 à 110°F)*
	Humidité (Encre):	*5% à 80% sans condensation*
	Humidité (Matériel):	*5% à 85% sans condensation*
Certification Médicale:	*Autorisation de commercialisation de la FDA (Appareil de classe 1)*	
Conformite:	*Appareil medical conforme aux normes FDA and MDD CE Class I, GMP/QSR ISO 13485-2003, GMP/QSR ISO 13485-2003, and 60601-1 Safety and EMC/EMI pour les societes medicales*	
Classification:	*Appareil de Classe I, type IPX0 ordinaire, continu avec chargement intermittent.*	

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